

# DUN'S REVIEW

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## *This Month's Cover* **SACRAMENTO**

*A lithograph in colors, "Sacramento, California, from the Front of J Street," the view reproduced on the front cover was drawn in 1849 by G. V. Cooper. The ships in the foreground are in the Sacramento River, the only navigable one in the State. This lithograph is generally regarded by collectors as the best early print of the city. From the Phelps Stokes Collection, it appears in DUN'S REVIEW through the courtesy of the New York Public Library, . . . Capital of California, Sacramento is at the confluence of the Sacramento and American Rivers, 90 miles northeast of San Francisco: It is just a century old, for 1839 was the year when the first white settler, Captain John A. Sutter, came to the site to build a trading post, Fort Sutter. When gold was discovered nearby just a year before the print was drawn, settlers flocked to Sutter's land and formally laid out the town. It soon became a trading and distributing center for the mines. . . . A city of semi-tropical vegetation and broad, tree-lined streets, Sacramento today (above) has a population of about 119,000. Among its industrial establishments are foundries, machine shops, canneries, and flour, grist, and lumber mills. On a per person basis retail sales in Sacramento—\$55,000,000 in 1935—are twice the national average. From this point is distributed much of the produce of the surrounding agricultural district: cereals, wool, nuts, vegetables, including 90 per cent of the world's supply of canned asparagus, and twenty varieties of fruit.*

# DUN'S REVIEW

for

## DECEMBER, 1939



CHARLES PHELPS CUSHING



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¶ For those interested in the prints of century-old cities appearing on the covers of DUN'S REVIEW, the publishers have arranged to provide mounted copies suitable for framing. Not all back numbers are available. Orders for copies of prints on current issues should be placed promptly, accompanied by check or money order. For prints set off by a French mat

13½ x 14¾ inches ready for framing the charge is \$1. For prints mounted and framed, with glass, the charge is \$3. If in New York City, add 2 per cent sales tax. . . . ¶ Information about subscription rates will be found on page 52. . . . ¶ Second cover photograph, Fairchild Aerial Surveys, Inc. Frontispiece photograph, Charles Phelps Cushing. . . . Printed in U. S. A.









SHOPPING STREET, YORK, ENGLAND—PHOTO, HEFFERNAN FROM GENDREAU

## RECENT RETAILING TRENDS IN EUROPE

DAVID R. CRAIG

*President, American Retail Federation*

IN BUDAPEST, since early in 1939, it is against the law for a merchant to haggle with a customer over the price of goods. In the Netherlands, nobody is free to open a new store unless he can pass an examination in retail store management and demonstrate that he has enough capital.

Over here we have forgotten the time when fixed prices were not plainly marked on merchandise, but we have yet to restrict retail distribution to those who can prove in advance that they are competent.

Between these extremes, in one part of Europe or another, many of our own trends of distribution are vividly reflected. It is true that the background situation in Europe differs in many ways from our own, but its problems today may become our problems tomorrow, and for that reason alone it may be worth

*A representative of several retail associations and a close student of their problems, Dr. Craig here summarizes recent developments in retailing abroad for their possible future significance in the United States. This is one of a series of articles on subjects of importance to business, presenting opinions of men whose backgrounds and experience have created decided, and often conflicting, points of view.*

our while to summarize what has been happening recently.

We need not refer to the war. Except in a few instances, like instalment selling, we do not know what the war has done to European distribution.

Our material consists of reports of European events prior to September, and does not depend on war for its interest or its meaning. These events show, in one or another country, the results of competition and government regulation.

For the most part our economic background does not yet resemble the situation which has prevailed in Europe for many years. The European countries have had a relatively stable and relatively low income for the bulk of the population. As a result there has been much more class consciousness, which has been politically important, and much more emphasis on the



*Rue de Rivoli, fashionable shopping street in Paris. There payroll taxes are levied on department stores, with the tax increasing according to number-of-employee brackets.*

EWING GALLOWAY

durability and the so-called "intrinsic" values of goods than on their style or prestige values. Moreover, the tradition of the European merchant has been to keep his methods and his operating results to himself, so that Europe knows no such publications and has no such library of government and private reports about retail distribution as we have. The supply of goods there has never pressed the market as in America, and consequently the unanticipated market shrinkages and overproduction are much less familiar. Production has remained closer to consumption.

It may well be that America's physical growth is slowing down. If the process of slowing down should bring us a more stable population, an older population, a population of more limited income, and possibly a population compelled to be more aware of economic than psychological values in goods, then some of the differences between our situation and the background of European distribution would disappear. If they do, we ought to spend some time noting how competition, or government, or both, have influenced retail trade in a situation which prevails elsewhere. History might repeat itself.

We must quickly pass by some interesting notes, even though they have significance for our immediate problems at home. There is, for example, the subject of working hours. Paris department stores, applying the 40-hour work week a year ago last August, closed all day on Mondays. This came as a result of union pressure. At the same time, by special regulation, the

needs of retail service in smaller towns, towns of less than 10,000 population, were recognized. In these communities working hours were lengthened to 45 per week and stores were to close either Monday morning or Saturday afternoon. Similar differences between store hours of cities and small towns were established in Germany.

We must also pass by the activities of trade associations, which appear to differ substantially from those in America. In England, where price maintenance has been a familiar practice for several years, enforcement appears as an uncriticized activity. In Germany, which has been closing many of its smaller establishments, the trade association is used to determine which stores are to be liquidated.

Again, Poland's plan to improve retail storekeeping by offering a reduction of taxes to merchants who would adopt a standard accounting system, and the Warsaw exhibition of last May showing model stock arrangements and displays in a number of retail lines, have disappeared along with Poland and need only passing mention.

Our main interest will be in the contrasting attitudes of European countries toward different types of operation in retail distribution. Some of these attitudes have already found their way into law and into legislative administration. Others are still struggling for legal recognition. All of them, in one way or another, reflect similar attitudes in the United States.

One is struck at the outset, in reading the reports of the past fifteen months, with the importance in the public mind of the unit price store, where inexpensive merchandise is sold at one or two well-established prices, as in the "five and tens." It has been a principal subject of regulation, but of regulation springing from opposite points of view.

Before Czechoslovakia disappeared, its government had prohibited the opening of new unit price stores and had forbidden the enlargement of ones existing. Czechoslovakia had also restricted the items that could be offered for sale in these stores.

In Italy, however, the unit price store was being encouraged by the government. Last July this country contained 57 unit price stores and planned to expand the number until it reached 70. The Fascist pronouncements about large-scale retailing, which includes unit

price stores and department stores primarily, are of interest because they make an exception of retailing from their general economic attitude. The Fascist movement emphasizes the middle classes and prefers small or medium size enterprises rather than very big units. The same policy applies in general to retail trade, but the government believes that large scale retailing constitutes a necessary exception, and has placed no special taxes on this type of operation.

An investigation in 1937 by the Fascist Confederation of Merchants showed a gross margin for department stores of 26.9 per cent of sales, and for unit price stores of 22.9 per cent. Net profit amounted to 1.3 per cent for department stores and 3.1 per cent for unit price stores. Sales per employee in department stores ran to 70,000 Italian lire, and in unit price stores to 80,000, although the sales per sales clerk in department stores at 164,000 lire was substantially higher than the corresponding figure in unit price stores—113,000 lire.

Italy has promoted the unit price stores in Tripoli as part of the same attitude. When the time comes that the Fascist government finds it has enough unit price stores it can stop their further development, for the decree of 1926 provides that the opening of any new retail or wholesale enterprise, even a small independent store, is subject to approval by public authorities.

Germany states her philosophy differently. A district advisor for economics, speaking to retail trade officials last March, said: "It is not true that the small

and medium enterprises are doomed to disappear. It proves nothing that smaller enterprises of craftsmen have been closed down and their former owners have taken employment as craftsmen in larger firms. This is a reasonable process. In the long run, any enterprise which cannot hold its own is doomed to disappear."

The statement did not indicate whether the enterprise must hold its own against ordinary competition or against the Nazi government, and there is plenty of reason to believe that the shortage of labor in Germany has stimulated the transfer of many persons from distribution to manufacturing. From October, 1933, to October, 1938, the number of street traders and hawkers was reduced from 6,259 to 3,402; and the latter number was said to be required for the distribution of some commodities like fruits, cigarettes, and candy. In Osnabrueck the government has been conducting an experiment with vending machines for the same items, but the experiment is likely to fail, our reports say, partly because the machines cost more than the ordinary retailer can pay, partly because the human element in retailing is too important to be replaced.

The Nazi officials, through the Ministry of Economics, have adopted a relatively mild control of unit price stores. A decree in the middle of last Summer required special authorization for limited price variety stores, and for similar stores characterized by a special way of setting their prices, if they wished to carry articles at prices higher than 1.50 reichmarks, unless

#### EDUCATOR, LEADER IN RETAILING

*Born in Boston, Mass., 44 years ago, David Rankin Craig studied at Amherst College, later at the Bureau of Industrial Research in New York, and gained a doctor's degree in economics at Columbia in 1924.*

*For several years, with a wartime interlude spent in the Navy, Dr. Craig was engaged in teaching, first at Amherst, then at Carnegie Institute of Technology, and finally at the University of Pittsburgh from 1924 to 1935. There he was a professor of personnel administration and associated with the University's Research Bureau for Retail Training, first as its executive secretary and later as its director.*

*Then in 1935 Dr. Craig became director of research for the American Retail Federation; he has been its president since 1937. A federation of seven national and twenty-seven State associations, the ARF national association members are the National Association of Chain Drug Stores, National Retail Dry Goods Association, Co-operative Food Distributors of America, National Retail Furniture Association, American National Retail Jewelers Association, Mail Order Association of America, and the National Shoe Retailers Association.*



PHOTO—FRED MELLOR

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these higher-priced items were already being carried before October, 1936. Independent retail merchants had complained to the government that the addition of higher quality merchandise to the stocks of the unit price stores was developing a new type of department store "for which there is no need in the German economic system."

The drive for more factory labor followed studies of the number of shops and the number of their customers. One writer pointed out that the number of inhabitants per store differed strongly from one town to another. There was one tobacco shop in Altona for every 467 inhabitants, but in Hindenburg-Silesia there was only one tobacco shop to every 2,211 inhabitants. He added: "An economy in need of additional workers cannot wait for superfluous enterprises to be eliminated by natural processes." By last December the government appeared to have settled on seven as the right number of stores to serve each thousand inhabitants in urban communities. This figure corresponds roughly to the thirteen stores per thousand inhabitants found in the United States. In towns like Mulheim the new standard would require closing every other store.

The choice of stores to be liquidated began on March 16. Trade associations were important in the selection. The administration could close stores whose owners had received three months of unemployment relief since January, 1937, or who could not pay their taxes or the wages of their employees, or who were exempt from taxation. But an owner otherwise eligible for liquidation could be exempted if he could show that his store was essential for providing for consumers in an adequate manner, as in the case of small village shops, or if he was essential for other economic reasons, or if no other work could be found for him. The owner gets no compensation for the closing of his store, and must take any job offered to him by the government. It was estimated that about 10,000 stores out of 600,000 would be closed as a result of this decree.

Similar measures were taken to reduce the number of service establishments. About 200,000 independent artisans' shops were closed between 1936 and 1938, and by the end of 1939 another 70,000 were expected to go.

Switzerland proceeded differently. In this country, large-scale distribution includes consumer co-operatives as well as chains and unit price establishments, and appears to have been the subject of much private concern in the past two years. A soap manufacturer and a chocolate manufacturer insisted that their employees boycott unit price stores as well as the Migros, a powerful chain of stores-on-wheels. A demonstration by the independent retailers of Vevey, a town of 20,000 inhabitants was planned in order to support their request



PITSHKE FROM GENDREAU  
Milk dealer in Switzerland, where there is a special tax on larger distributors whose income is 200,000 francs.

that the government close the unit price store. Street demonstrations were prepared, but were forbidden by the authorities. The small retailers closed their shops by way of protest, and their association issued a threatening letter to the local consumer co-operatives urging them to join the movement. The co-operatives, however, replied that the movement was against the public interest and flatly refused to have any part in it.

Out of the protest came an investigation by the Swiss government. The principal conclusions of the investigation showed that the unit price store had taken some business from other retailers, and that this could not have been otherwise during a period of diminishing purchasing power and stable population; the main reason for the decline of business had been the general crisis and the general decline of the price level, and the decline of sales volume felt by the independent merchants of Vevey had been found to exist in other towns which had no unit price store. On the other hand, the investigators questioned the wisdom of the unit price home office in establishing a new branch in a town like Vevey which had been suffering from the depression for several years.

The popular resentment among smaller merchants found its way into the tax law during the Summer. The Swiss Federal Council needed money at first for public works and later for armament, and submitted to the electorate, successfully, a gross income tax on distributors whose business amounts to more than 200,000 Swiss francs per year. The bracketing of this tax throws light on the extent to which different types of operation are held in disrepute by the Swiss government.

The unit price store, for instance, is taxed at 4 per cent of its sales. A  $2\frac{1}{2}$  per cent tax is applied to department stores, to mail-order houses carrying a variety of articles, and to itinerant stores. Large specialty stores and consumer co-operatives are taxed at 0.75 per cent. The tax is to be introduced gradually, it is to last until 140 million Swiss francs have been collected (possibly a decade), and "it will be considered a part of operating expenses and thus reduce the amount of cantonal taxes on net profit, if any net profit is made at all."

In England the only evidence in our reports of the limitation of the number of stores is the restriction on new confectionery stores which was applied by an agreement between wholesalers and existing retail establishments. Trade associations of these two groups in Liverpool agreed to prevent, by refusing to supply merchandise, the opening of any new confectionery shop within a distance of 150 yards from any existing store selling the same kind of merchandise.

Until recently Great Britain had been untouched by agitation of small retailers against their large-scale competitors. A bill to protect small traders met with no response in Parliament. But Rotary Clubs, Y.M.C.A. meetings, and Chambers of Commerce in small communities have been increasing their attention to this question. British consumer co-operatives, on the other hand, have been reported as contemplating entering the unit price field.

The attitude of the French government has varied. In May, 1938, a decree gave relief to the large and medium-sized retail establishments. Up to that time retailers who sold private brands were taxed as producers an amount equal to 8.7 per cent of their retail sales of these items, less 30 per cent—a supposed "cost price of sales." The decree abolished this burden.

In March of 1936 the law of France prohibited the opening of new unit price stores or increasing the selling area of existing ones. This law has been renewed each year. This year the Minister of Commerce asked the advice of the highest official advisory body

on economic matters, the French National Economic Council. The reply was that in the opinion of the Council the law was undesirable, that each form of distribution should be allowed to develop freely, to expand or contract according to the public need. It pointed out that such stores in England have found their own limits. In spite of the report, the government extended the law to 1940.

At the same time, however, the Paris department stores are taxed on the number of their employees. For every employee in excess of 1,000 the tax is 1,675 French francs per year; for every employee in excess of 2,000 a tax of 3,015 francs; in excess of 3,000, a tax of 4,355 francs; in excess of 4,000, a tax of 5,695 francs. These are payroll taxes on the order of from 10 to 30 per cent of payroll. In addition, the collective wage agreements which followed the sit-down strikes of 1936 require department stores to pay salaries 20 to 30 per cent higher than in other retail establishments.

France this year prohibited again any new investment in itinerant stores and extended for a short period the law prohibiting the opening or enlargement of shoe factories, repair shops, and retail shoe stores, as well as the transfer of shoe stores to other owners or other locations. There was agitation too for the limitation of the number of bakeries. At the same time the government encouraged the opening of new chain stores by exempting newly created branches, until 1942, from a heavy special tax on chain stores having more than five units. The purpose of the decree was to stimulate the store building and equipment trades and to encourage investment and employment.

These are some of the trends of European distribution. They were in evidence before the war broke out, and we have no way of knowing yet how they have been affected by the new tension and by the needs of a war economy. Concentrated as they are both in space and time, they are nevertheless far enough away from our own routines so that we can comprehend them easily and quickly, and use them to contribute to our understanding of similar issues at home.

HEAVY PEDESTRIAN TRAFFIC, DRESDEN, GERMANY—PHOTO, HOLMES FROM EWING GALLOWAY



**I**F THERE is one policy that seems to have had almost universal currency in the underwriting departments of fire insurance companies over the years it is the one which follows the ancient adage: "Man makes the risk;" the corollary is: "As long as the moral risk is sound we'll take the business."

Perhaps this is not the whole story, perhaps a man's values, his ethical standards, do vary under changing environments and circumstances. Perhaps both situations exist. Perhaps in the case of some individuals, the moral risk remains unchanged through life, and perhaps in the case of others, there are varying ups and downs in the concepts of ethical standards, depending upon the pressure of changing environments.

In a city in western New York a concern which had been engaged in selling plumbing supplies at wholesale and retail for eight years issued a balance sheet which seemed to reflect a fairly satisfactory credit condition. The figures disclosed current assets of \$76,100 to cover current liabilities of \$39,600, and an apparent tangible net worth of approximately \$54,000.

Except where liabilities are nominal, it is usually extremely helpful for credit analysis to have the figure of annual net sales. For this concern net sales for the year amounted to about \$84,000, of which \$40,000 was represented by services and the remaining \$44,000 by merchandise sales. These figures disclosed



REPRODUCED FROM A LITHOGRAPH BY CURRIER & IVES, 1858, COURTESY OF THE H. V. SMITH COLLECTION

*The American Fireman—"Always Ready."*

## CHANGEABLE CHARACTER *and* RELENTLESS RATIOS

*Originally developed to test the soundness of operating policies, financial ratios may also be employed in checking the moral hazard of fire insurance risks.*

ROY A. FOULKE  
DUN & BRADSTREET, INC.

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a very enlightening story. That business was edging close to eternity.

Two significant financial comparisons were radically out of line, indicating that the enterprise was a far from healthy credit risk. The accounts and notes receivable totalled \$41,900, just about one-half of the annual net sales, giving an average collection period of approximately six months; at least half of those receivables were absolutely worthless. The inventory, carried in the balance sheet at \$32,400, was far too heavy when compared with annual net merchandise sales of \$44,000, and probably contained more than a reasonable amount of out-of-date, second-hand, or shopworn merchandise.

In other words, this concern was goose-stepping straight for the precipice of financial embarrassment on a one-way road. These two ratios in the concern's financial statements could be misinterpreted by an alert analyst no more than a sudden drop in the barometer by a seasoned sailor. The apparently unsound financial condition was confirmed by a thorough trade investigation. Thirteen companies selling the account reported slow payments, with the slowness ranging up to 120 days.

There was apparently no question about the moral hazard, the honesty, the integrity of the owner of the business. He was a man sixty-six years of age, held in the highest esteem by his neighbors and by his business associates. In his fifty years of business experience, he had never been involved in a fire, a failure, or extensive litigation. But he had never before been in the unfortunate circumstances where a fire, a failure, or extensive litigation might have been the happy alternative to financial ruin. His environment, the pressure upon his standard of business integrity, his dismay when he anticipated the future, were becoming more powerful than his character, his strength of will, his moral backbone. His moral resistance was breaking.

### Too Old

He was too far along in years to begin over again. Even if he felt like struggling to start a new enterprise, where could he obtain the funds? If his business failed that would be a blot upon his business ability, upon his unstained career. Yet he himself knew he was headed for bankruptcy within a month or two just as well as every

credit man who was trying to collect.

But if, by chance, a fire occurred, the records, he knew, would tell a different story. Funds from the loss of insured merchandise and buildings would be more than ample to liquidate all of the liabilities and there would probably be a nest-egg to start another small venture. His continued financial independence would be assured at least for some time.

With this reasoning in the back of his mind, perhaps the owner became just a little careless in the appearance, in the cleanliness, in the upkeep, of his usually immaculate store and basement. Perhaps waste paper was allowed to remain underfoot for several days when normally it would have been immediately removed as packages were unwrapped; perhaps excelsior was thoughtlessly discarded into dark, unfrequented corners; perhaps the owner smoked a few more cigars, and perhaps no notice was taken when employees threw half-smoked cigarettes on the floor or thoughtlessly placed them on handy window ledges. A degree of premeditated carelessness, less conscientious attention to pertinent details, became second nature.

### *The Life of a Fireman—"The Night Alarm."*

REPRODUCED FROM A LITHOGRAPH BY N. CURRIER, 1854, COURTESY OF THE H. V. SMITH COLLECTION



# FOR 36 MANUFACTURING INDUSTRIES—FOURTEEN IMPORTANT FINANCIAL

(When the figures for a given ratio in a given industry are arrayed in a list according to their size, the median is the In this table the inter-quartile figures appear in italics and show the range of experience of the middle half of the

LINE OF BUSINESS	Number of Concerns	Current Assets to Current Debt	Net Profits on Net Sales	Net Profits on Net Worth	Net Profits on Net Working Capital	Turnover of Tangible Net Worth	Turnover of Net Working Capital	Average Collection Period	Net Sales to Inventory	Fixed Assets to Tangible Net Worth	Current Debt to Tangible Net Worth	Total Debt to Tangible Net Worth*	Inventory to Net Working Capital	Inventory Covered by Current Debt	Funded Debt to Net Working Capital†
		Ratio	Per Cent	Per Cent	Per Cent	Times	Times	Days	Ratio	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
Automobile Parts and Accessories	98	5.94 3.62 2.00	2.92 1.16 0.62†	7.38 2.26 0.68†	15.42 4.13 1.73†	2.51 1.92 1.09	5.28 3.55 2.81	31 46 55	8.7 5.5 4.4	35.7 49.6 70.4	9.7 18.8 42.8	53.2 73.6 82.9	38.7 62.3 88.0	37.0 58.4 94.7	60.6 90.8 103.7
Building Contractors	93	3.49 2.50 1.79	2.41 1.62 0.13	17.60 8.70 0.39	27.00 14.50 0.64	7.32 5.11 2.99	11.21 9.02 5.37	** ** **	** ** **	8.9 24.6 37.1	12.5 30.3 61.5	...	** ** **	** ** **	...
Chemicals, Industrial	44	5.48 3.71 2.47	3.26 2.69 1.40	10.21 5.82 2.23	12.78 12.69 2.64	3.76 1.78 0.69	4.73 3.88 1.88	29 42 60	5.9 4.2 2.7	33.1 46.7 76.6	8.3 18.2 43.5	45.5 61.5 108.2	49.0 62.0 86.9	34.4 66.6 97.5	55.1 78.7 93.9
Clothing, Children's Dresses and Wash Suits	38	4.51 2.90 1.92	0.45 0.36 1.56†	4.44 2.54 5.52†	6.08 2.67 7.26†	9.90 6.63 3.52	13.45 7.47 4.63	28 38 50	14.3 8.9 5.2	5.7 9.5 16.6	15.1 39.4 69.6	...	32.5 67.3 85.2	49.5 75.6 114.5	...
Clothing, Men's and Boys'	297	4.37 2.60 1.88	0.74 0.81† 3.04†	3.58 0.81† 7.32†	4.49 0.86† 8.32†	4.85 3.61 2.43	6.03 4.39 2.75	44 66 96	9.3 6.7 4.6	2.2 6.8 13.6	20.6 42.3 82.1	...	40.7 60.6 87.2	39.2 77.6 128.6	...
Coats and Suits, Women's	110	4.33 2.74 2.08	0.47 0.04 0.79†	4.79 0.22 3.83†	5.21 0.27 4.48†	10.20 5.83 4.87	11.09 7.19 5.58	26 33 48	24.8 15.0 7.4	3.3 6.1 10.9	17.5 44.2 73.9	...	24.0 42.1 72.8	69.5 111.4 149.2	...
Confectionery	63	5.28 3.03 2.34	2.02 1.49 0.42†	8.82 3.81 0.68†	17.56 8.58 1.44†	4.36 2.45 1.56	8.78 6.01 3.42	13 32 53	16.6 10.1 8.7	24.6 16.6 65.8	6.5 16.6 34.2	31.4 39.7 52.6	33.9 49.7 76.5	38.7 73.7 127.8	65.0 93.8 101.6
Corsets, Girdles, and Brassieres	37	4.16 2.81 2.10	1.70 1.31 0.26†	8.77 5.61 0.61†	13.55 7.77 0.99†	5.14 4.37 2.56	8.00 5.98 3.55	38 47 64	7.4 5.9 4.3	7.1 12.9 24.1	13.7 29.3 58.3	...	54.7 72.8 101.8	34.8 57.7 81.6	...
Cosmetics and Toilet Preparations	25	5.35 3.33 2.63	7.52 5.18 1.34	23.39 11.67 1.83	34.16 19.74 2.65	2.94 2.24 1.36	4.55 3.83 1.99	29 46 67	9.3 6.7 5.7	6.9 17.5 36.3	7.4 15.0 39.5	...	27.6 44.9 68.6	31.9 55.7 96.4	...
Cotton Goods, Converters	47	3.65 2.50 1.88	1.06 0.12 2.31†	7.33 0.63 5.89†	8.24 0.78 6.80†	6.93 4.20 2.53	7.78 5.22 2.93	31 61 76	8.5 5.9 3.4	0.4 1.2 5.8	27.1 48.9 76.1	...	61.5 75.9 114.2	41.2 69.6 107.0	...
Dresses, Silk and Rayon	103	3.85 2.42 1.85	0.77 0.25 0.54†	8.13 1.79 2.47†	9.85 2.17 3.32†	11.22 7.02 4.55	13.58 9.02 6.09	30 41 49	34.6 19.7 11.1	2.7 6.0 12.4	22.9 50.2 88.1	...	17.3 28.4 55.1	105.5 142.5 221.9	...
Electrical Parts and Supplies	48	5.03 3.36 2.19	2.22 1.12 3.42†	5.32 1.99 3.35†	9.03 2.79 6.20†	2.37 1.77 0.98	3.96 2.53 1.81	39 46 70	7.1 3.6 1.9	25.8 41.2 56.8	7.1 19.1 48.1	...	53.2 77.9 96.7	28.3 48.3 85.4	...
Foundries	85	5.59 4.37 2.26	1.60 0.89† 5.10†	3.23 1.35† 4.98†	12.34 4.48† 14.76†	2.01 1.53 0.98	7.50 4.93 2.99	34 41 56	14.9 7.4 5.7	54.5 63.2 86.2	5.7 9.3 19.6	29.7 48.5 84.3	34.8 49.2 77.8	31.7 67.6 134.5	89.6 108.9 149.8
Fruits and Vegetables, Canners	46	2.07 1.73 1.26	0.75 0.47† 2.72†	3.72 1.01† 4.57†	8.47 2.46† 7.58†	4.94 2.11 1.68	11.27 6.33 2.76	14 20 32	5.3 2.9 1.6	46.8 58.3 90.2	33.8 58.3 109.6	81.5 114.7 128.0	101.4 142.6 188.2	60.4 80.0 94.5	64.7 92.4 123.2
Fur Garments	38	4.99 2.90 2.12	1.84 1.15 2.64†	10.00 3.68 4.42†	11.38 4.30 4.96†	5.60 3.27 1.66	6.04 3.67 1.97	42 54 76	11.7 8.4 3.7	1.4 5.4 6.3	14.8 28.2 77.1	...	30.9 49.8 72.1	34.0 57.9 127.6	...
Furniture	113	3.78 2.88 2.06	1.73 0.11 3.69†	5.07 0.23 3.22†	9.12 0.45 8.34†	3.06 1.76 0.88	5.07 3.61 2.28	42 53 73	7.9 5.0 3.5	13.2 37.4 62.5	11.2 27.2 57.7	38.7 43.6 74.6	48.1 71.4 95.8	37.4 67.6 110.0	54.2 87.6 116.5
Hardware and Tools	72	5.90 3.43 2.11	4.10 1.48 0.93†	11.30 2.02 1.00†	24.70 5.16 1.77†	2.40 1.35 0.93	6.04 3.47 1.90	21 42 52	7.8 3.4 1.9	36.8 52.6 70.1	5.5 14.3 31.4	30.6 56.4 95.1	53.3 77.2 94.6	21.6 41.5 87.2	64.8 93.9 134.1
Hosiery	74	4.53 2.16 1.59	2.32 1.17 0.81†	9.61 3.07 1.53†	28.81 8.59 3.25†	4.14 2.61 1.75	12.44 7.29 3.93	22 29 36	9.2 7.3 3.9	42.5 61.4 84.5	14.2 26.3 59.1	48.5 71.6 102.5	57.9 83.4 136.2	44.5 89.9 126.1	70.1 98.0 124.4

† Loss. \* This percentage was determined only for those lines of business and for those years in which a reasonable number of concerns had outstanding long-term liabilities. \*\* Building contractors have no inventories in the credit sense of the term. They only carry materials such as lumber, bricks, tile, cement, structural steel, and building equipment to complete particular jobs on which they are working. They have no customary selling terms, each contract being a special job for which payment is received as per that contract.

## EXPLANATION OF RATIO ANALYSIS TERMS

**COLLECTION PERIOD**—The number of days that the total of trade accounts and notes receivable (including assigned accounts and discounted notes, if any) less reserves for bad debts, represents when compared with the annual net credit sales. Formula—divide the annual net credit sales by 365 days to obtain the average credit sales per day. Then divide the total of accounts and notes receivable by the average credit sales per day to obtain the average collection period.

**CURRENT ASSETS**—Total of cash, accounts, and notes receivable for the sale of merchandise in regular trade quarters, inventory, listed securities when carried at the lower of cost or market, and United States Government securities.

**CURRENT DEBT**—Total of all liabilities due within one year from statement date including current payments on serial notes, mortgages, debentures, or other funded debts. This item also includes current reserves such as reserves for taxes and reserves for contingencies set up for specific purposes, but does not include reserves for depreciation.

**FIXED ASSETS**—The sum of the depreciated book values of real estate, buildings, leasehold improvements, fixtures, furniture, machinery, tools, and equipment.

**FUNDED DEBT**—Mortgages, bonds, debentures, gold notes, serial notes or other obligations with a maturity of more than one year from the statement date.

**INVENTORY**—The sum of raw material, material in process, and finished merchandise. It does not include supplies.

# RATIOS—MEDIAN AND INTERQUARTILE RANGE FIGURES—FOR 1938

*middle figure, the inter-quartile range is the range between the figures one-quarter and three-quarters down the list. concerns; the median figure, showing the experience of the middle concern, appears between the italicized figures.)*

LINE OF BUSINESS	Number of Concerns	Current Assets to Current Debt	Net Profits on Net Sales	Net Profits on Tangible Net Worth	Net Profits on Net Working Capital	Turnover of Tangible Net Worth	Turnover of Net Working Capital	Average Collection Period	Net Sales to Inventory	Fixed Assets to Tangible Net Worth	Current Debt to Tangible Net Worth	Total Debt to Tangible Net Worth*	Inventory to Net Working Capital	Inventory Covered by Current Debt	Funded Debts to Net Working Capital*
		Ratio	Per Cent	Per Cent	Per Cent	Times	Times	Days	Ratio	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent
Knitted Outerwear	82	4.04 2.70 1.80	1.60 0.76 1.68†	7.98 2.77 3.25†	17.50 5.24 5.94†	5.03 3.66 1.94	10.42 6.82 3.51	15 36 57	13.0 8.9 6.3	3.7 20.3 39.9	11.4 30.5 62.1	...	35.1 65.9 89.0	27.6 80.9 110.6	...
Leather Garments	23	6.30 3.71 2.52	2.59 0.85 4.44†	11.15 3.18 9.81†	12.91 3.75 16.45†	4.26 3.73 2.16	4.99 4.35 3.57	29 47 69	12.6 10.4 8.0	2.7 7.1 12.0	10.9 20.8 42.1	...	32.3 46.4 54.3	35.6 70.0 99.3	...
Leather Tanners	32	4.35 2.26 1.55	1.37 0.55† 2.79†	4.29 1.87† 4.06†	6.76 2.61† 7.41†	3.10 3.39 1.42	4.92 4.70 2.61	25 38 50	6.8 4.0 2.8	15.2 28.5 40.7	13.3 35.8 77.7	...	61.1 97.5 120.0	24.2 65.6 100.3	...
Luggage, Leather	27	4.80 2.96 2.26	2.28 0.63 3.89†	9.66 2.13 8.18†	15.60 2.89 8.84†	4.47 3.35 2.13	7.15 4.47 2.22	33 65 88	13.7 6.9 4.0	5.2 10.9 27.0	16.9 30.0 52.6	...	47.5 70.2 84.3	30.1 66.7 113.7	...
Machinery, Industrial	363	5.34 3.58 2.28	2.96 0.54 3.55†	6.88 0.84 3.45†	12.81 1.58 6.40†	2.29 1.44 0.98	4.40 2.74 1.81	35 50 77	6.5 4.5 2.8	28.1 43.3 60.0	7.0 14.5 35.5	57.7 74.1 111.6	42.7 62.2 88.3	25.2 50.2 77.8	66.8 86.4 123.9
Millinery	30	4.38 3.29 2.40	0.81 0.28 1.35†	7.55 1.33 4.70†	8.96 1.85 7.90†	9.19 4.83 3.42	11.37 6.70 5.79	34 42 52	22.8 17.2 9.2	7.0 27.3 19.6	14.8 35.8 50.3	...	25.2 38.9 55.8	60.4 99.5 147.0	...
Neckwear, Men's	52	4.24 2.45 1.77	1.19 0.07† 4.01†	4.45 0.27† 9.70†	5.79 0.31† 10.31†	5.48 3.76 2.36	7.19 4.52 2.55	62 75 98	16.6 9.2 4.5	2.0 8.2 10.8	13.8 39.5 77.4	...	23.6 44.7 77.0	36.5 108.7 165.8	...
Paints, Varnishes, and Lacquers	179	5.80 3.51 2.25	3.79 1.52 1.23†	10.11 3.42 1.81†	19.80 6.78 3.18†	2.64 2.26 1.47	5.23 4.26 2.57	38 53 69	8.6 6.2 3.9	25.3 36.8 53.5	6.9 14.2 31.3	36.9 59.2 99.1	44.2 58.2 79.2	25.8 48.1 92.3	54.3 95.8 114.4
Paper	56	4.96 2.77 1.98	1.92 1.88 0.60†	3.89 2.30 0.68†	14.06 8.06 2.10†	2.06 1.26 1.06	7.92 4.37 3.20	27 36 44	5.6 4.6 3.4	50.9 76.6 96.4	9.3 16.5 31.2	34.0 62.8 76.2	56.1 75.5 104.2	28.2 53.1 78.8	86.7 136.8 202.6
Paper Boxes	59	5.44 3.02 2.01	2.55 1.22 0.04†	8.01 2.03 0.04†	17.81 7.10 0.14†	3.14 1.62 1.06	7.00 5.70 3.88	30 40 49	9.1 6.8 5.3	41.1 60.2 76.6	7.9 13.7 31.4	27.1 49.0 77.6	48.5 60.7 86.9	43.3 63.2 105.4	77.4 89.9 136.1
Printers, Job	76	4.45 3.07 1.80	1.95 0.53† 3.19†	5.13 1.07† 3.19†	19.75 2.03 12.75†	2.58 2.03 1.00	10.04 5.68 3.97	32 43 55	** ** **	35.7 52.5 69.2	9.2 17.7 31.9	47.8 57.6 66.4	** ** **	** ** **	97.8 109.1 130.0
Publishers, Books (Printing done by others)	21	5.41 4.37 3.31	3.76 0.92 3.01†	8.60 1.48 2.80†	10.43 2.27 5.42†	2.08 1.52 0.93	2.67 2.34 1.80	45 68 89	5.9 3.9 2.0	2.5 15.2 35.2	13.7 24.7 36.3	...	33.1 55.2 76.4	48.9 53.7 95.8	...
Purses and Handbags, Leather	23	4.23 2.46 1.81	0.82 0.60 0.69†	8.99 3.92 3.49†	11.16 5.68 3.74†	10.49 6.72 5.04	14.45 9.13 5.41	24 32 50	17.2 10.7 6.1	5.7 10.7 21.0	25.1 44.7 93.1	...	32.9 71.4 91.6	68.4 92.2 122.1	...
Shirts, Underwear, and Pajamas, Men's	70	3.39 2.38 1.85	0.95 0.14 2.69†	5.53 0.44 6.58†	7.49 0.74 8.30†	6.15 3.60 2.54	8.06 5.08 3.03	28 57 82	10.0 6.5 4.7	3.7 13.0 24.2	21.1 45.3 81.1	...	46.8 70.4 104.1	45.7 78.0 125.1	...
Shoes, Women's and Children's	71	4.86 2.72 1.88	2.38 1.40 0.09	11.71 5.85 0.19	20.58 9.57 0.32	5.13 4.16 2.39	8.32 6.77 3.27	21 36 54	12.8 8.0 5.7	14.4 22.7 34.6	16.1 36.4 70.1	...	43.3 66.9 96.4	39.7 80.9 112.4	...
Silk and Rayon Piece Goods, Converters	57	3.88 2.44 1.77	0.29 0.18 0.32†	2.69 0.88 1.11†	2.93 0.92 1.18†	9.50 4.90 3.46	10.00 5.20 3.64	36 50 76	9.7 6.8 4.4	0.8 1.5 3.2	30.2 54.6 100.0	...	47.6 75.9 94.0	40.7 80.6 118.5	...
Toys and Novelties	21	5.33 3.09 2.60	1.80 1.68 0.97†	9.33 6.45 2.43†	19.19 9.16 4.00†	5.10 3.81 2.49	10.50 5.38 4.14	18 32 58	13.2 6.6 4.2	5.5 18.9 26.1	15.5 26.7 55.8	...	44.5 59.2 84.9	42.2 69.6 121.1	...
Underwear, Women's Silk	82	3.70 2.37 1.73	0.62 0.44 0.70†	5.17 2.17 2.24†	7.23 3.45 3.24†	8.30 5.10 3.12	11.66 7.66 4.69	33 43 62	16.2 10.1 6.4	5.3 11.1 21.3	18.1 46.0 86.9	...	35.5 65.8 87.8	49.8 75.2 144.1	...

† Loss. \* This percentage was determined only for those lines of business and for those years in which a reasonable number of concerns had outstanding long-term liabilities. \*\* Job printers have no inventories in the credit sense of the term. They carry only current supplies such as paper, ink, binding materials and lead for type-casting.

**NET PROFITS**—Profit after full depreciation on buildings, machinery, equipment, furniture, fixtures, and other assets of a fixed nature; reserve for taxes; reduction in the value of inventory to cost or market, whichever lower; charge-offs for bad debts; all miscellaneous reserves and adjustments; but before dividends or withdrawals.

**NET SALES**—The dollar volume of business transacted for 365 days net after deductions for returns, allowances, and discounts from gross sales.

**NET SALES TO INVENTORY**—The quotient obtained by dividing the annual net sales by the statement inventory. This quotient does not represent the actual physical turnover which would be determined by reducing the annual net sales by the percentage of gross profit, and then dividing the resulting figure by the statement inventory.

**NET WORKING CAPITAL**—The difference between the sum of the current assets and the sum of the current debt.

**TANGIBLE NET WORTH**—The sum of all preferred stocks (if any) and common stocks, surplus, and undivided profits, less any intangible items in the assets, such as good-will, trade-marks, patents, copyrights, leaseholds, mailing lists, treasury stock, organization expenses, and underwriting discounts and expenses.

**TURNOVER OF TANGIBLE NET WORTH**—The quotient obtained by dividing the annual net sales by the tangible net worth.

**TURNOVER OF NET WORKING CAPITAL**—The quotient obtained by dividing the annual net sales by the net working capital.



THE lithographs reproduced on pages 10, 11, and 15 are from the collection of fire memorabilia of Harold V. Smith, president of the Home Insurance Company. Begun when Mr. Smith was still a boy, the museum is one of the most extensive and unusual in the country. The Currier & Ives fire prints make up probably the most extensive collection of the sort in existence; still, they are but a few of the thousand museum items.

One of the first objects to catch a visitor's eye is an early New York fire engine with a body of solid, inlaid mahogany. Near it are models of a dozen or more other engines, firemen's colorful stove-pipe parade hats, and bright fire buckets from the days when the law required householders to keep them ready. Mounted on the walls are more than a thousand fire marks, plates which were used by insurance companies so that their own fire-fighters could identify insured property.

It seems significant that a very welcome fire occurred only three weeks after the ominous year-end figures became available. The fire cost the fire insurance companies \$55,000. Perhaps it is just a coincidence that many fires of this nature take place every year in the quarters of over-extended business enterprises, of concerns that are coincidentally heavy with merchandise and liabilities or with fixed assets and liabilities, of concerns which are having difficulty paying invoices for recent purchases.

### Two Hazards

Fire insurance underwriting is susceptible to losses from two broad types of fire hazards, physical and moral. Physical hazards are those which are inherent in the exposure to adjacent hazards and in the different types of construction of insured premises, construction with different degrees of resistance to fire such as frame, brick veneer, brick on steel beams and concrete with wood interiors, stone on steel and concrete. Moral hazards are those which result from the character, the behavior, the attitude toward established ethical concepts by the insured, by the owner or by others associated with the insured or on his property.

Moral hazard fires, in turn, fall into two categories. In the first category are fires caused by a variety of personal

motives other than as a means to obtain unjust enrichment: revenge fires, nuisance fires to destroy eyesore property, cover-up fires set by individuals who fear the discovery of theft, and the malicious, mischievous fires caused by roving pyromaniacs.

In the second category are intentionally or carelessly set fires started on the premises of financially extended business enterprises, as in the case of the wholesale and retail dealer in plumbing supplies. By coincidence, in these cases, a fire breaks out just at that moment when there is a definite need for one and only one thing, cash, to pay long overdue merchandise invoices or current debts of long standing at a local bank. There can be no doubt that in some of these cases the moral hazard has suddenly and unexpectedly dropped to a new low; the pressure of disaster ahead has broken through the armor of accepted ethics. In other cases carelessness under the stress of financial pressure has allowed the premises to become more and then more of a physical hazard.

Every year there are a certain percentage of known arson cases, situations where fires are lighted surreptitiously by a financially interested individual, or by someone hired by him. Probably in a very substantial but unrecognizable percentage of cases, however, fires become happy realities

because the owner has become somewhat more careless, perhaps purposely careless in the conscientious upkeep of his premises than he would were operations profitable and the business in strong financial shape. This carelessness is translated into inattention to defective wiring, to the accumulation of rubbish, to careless storage of merchandise; it perhaps goes as far as consciously allowing fire extinguishers to deteriorate and fire buckets to become empty. Simultaneously there is also an increase in the physical hazard; repairs are not made as readily; electrical installations are made by amateurs and not by licensed electricians; there seems to be less incentive to keep property, outside and inside, in first-class condition.

### Fire Losses

Aggregate property losses from fires during the last five years have amounted to \$1,293,669,000, or an average of \$258,733,800 per year, and during the past ten years to the immense total of \$3,379,050,000:

	AGGREGATE LOSS	PER CAPITA
1938.....	\$265,591,000	\$2.04
1937.....	254,959,000	1.97
1936.....	266,659,000	2.08
1935.....	235,263,000	1.84
1934.....	271,197,000	2.14
1933.....	271,453,000	2.16
1932.....	400,859,000	3.21
1931.....	451,643,000	3.64
1930.....	501,980,000	4.08
1929.....	459,446,000	3.78

Here is economic waste comparable to the tremendous useless wastes of war, actual physical property consumed in flames. During this ten-year period the greatest yearly loss of \$501,980,000 took place in 1930, closely followed by those of 1929 and 1931. In 1933 the loss amounted to the more moderate figure of \$271,453,000, a drop of 32 per cent from the preceding year, and since that time yearly losses have been materially smaller than before 1933. Yearly per capita losses follow a somewhat different curve due to our gradually increasing population. The greatest loss per capita of \$4.08 occurred in 1931 and smallest, of \$1.84, in 1935. For 1938 the loss amounted to \$2.04 per person, an



REPRODUCED FROM A LITHOGRAPH BY N. CURRIER, 1854, COURTESY OF THE H. V. SMITH COLLECTION

*The Life of a Fireman—"The Race."*



REPRODUCED FROM A LITHOGRAPH BY CURRIER & IVES, 1861, COURTESY OF THE H. V. SMITH COLLECTION

*The Life of a Fireman—"The New Era—Steam and Muscle"*

appreciable decrease from \$3,78 in 1929.

Then there are the out and out arson cases. It was not so many months ago that a fire in a New England town spread one evening from one building to another and by the following morning three entire blocks lay in waste with a final fire insurance loss of \$300,000. That fire started in the basement of a moderate-sized wholesale hardware enterprise in a two-story brick veneer building. A financial statement issued two months before the fire disclosed current assets of \$39,600, of which \$26,000 was inventory, and current liabilities of \$24,200, giving an apparent net working capital of \$15,400.

### Three Out of Line

Three financial ratios were obviously out of line: (1) the current liabilities were excessive when compared with the current assets; (2) although in the typical wholesale hardware business current liabilities are rarely larger than one-half of the tangible net worth, here they were 51 per cent greater; and (3) although inventory is generally less than the net working capital, here it was 97 per cent larger. This extended financial condition was emphasized and re-emphasized by the fact that invoices for current merchandise purchases were running from 30 to 120 days slow. Bankruptcy was staring that corporation in the face, and to all appearances there was no out.

The president of the corporation had been a plumber for several years. He had made a living, but no particular headway toward financial independence until he began selling a line of oil burners shortly after they first appeared on the market. It was a little difficult to sell them for cash, but it was not so difficult to sell them on a deferred payment plan with monthly payments extending over a period of three years. So the installment business was built up and the notes sold to a local specialized finance company as soon as a burner was installed. With no knowledge of bookkeeping, no instinct for order, and no help to keep his records

straight, the owner of that business became chronically slow in paying his bills.

With this unique, if very unsatisfactory, background of business experience, the president had decided to take over a local wholesale hardware business and merge his oil burner operations as a retail division. The wholesale hardware concern was being liquidated because of the death of the principal partner and a bargain price was arrived at for the inventory and fixtures. To balance the inventory and to provide sufficient cash for normal operations, \$12,000 was now borrowed from a trusting woman who had inherited funds from a relative and was running a small millinery shop. She became the honorary and inactive vice-president.

Under sound, efficient, aggressive management the business could have been built up from this point. The new president, however, was inexperienced in financial matters, inefficient, and accustomed to spending more than he really earned, possibly because he had never known, as many salesmen neglect to determine, the real extent of his monthly or yearly earnings. There was one inevitable result. Unable to take care of his own affairs, he could not take care of the affairs of his business. Month after month he purchased more merchandise than was needed, sales dropped off, correspondence remained unanswered on his desk, and the payment of invoices began to drift.

But though the president of the business was incapable of taking charge of the situation and although he had been inclined to live somewhat beyond his means, there never had been any question of his integrity. He had never committed any crime; he had never been sued. But in his mind a plan was gradually evolving as the finances of the business went from bad to worse, a plan which would solve the emergency, which would bring order out of chaos, money out of unsalable assets. A fire would provide the funds to pay all liabilities, and if an advantageous

compromise would be made with the insurance companies, a profitable fire sale could be carried on with the damaged merchandise and everything would work out. Arson would solve all difficulties.

So on a dark, stormy night a trusted employee was hired to kindle a fire. About nine-thirty he entered the building, saturated a pile of waste with turpentine, and lit the fire. The attempt failed.

### \$300,000 Fire

The following morning the debris was carefully cleaned up. That night a second attempt was made and with more success. The fire became as real as a call for margin. It spread to two other blocks and cost insurance companies no less than \$300,000. The complete details of this case were brought out in the trial of the "aggressive oil burner salesman," who was sentenced to five years' confinement away from close contact with society and his friends.

In such cases where the moral hazard does break down as the financial condition of a business enterprise becomes more and more extended, the loss often is not limited to the individual situation. Such a fire may easily spread, as it did in this case, to adjoining property and then on with tragic results to others more and more distant.

No one can predict with even a fair degree of certainty when a failure or a fire will take place. But it is no difficult task to investigate, to gather, to interpret, and to analyze—with ratios and common sense—the multitude of factors which affect the credit risk of business enterprises and to give unusual attention especially to concerns with top-heavy liabilities, excessive inventories, or unusually large fixed assets. It is among such situations that are found the weakening characters which might attempt to profit by welcome fires. It is here that integrity and apparently sound moral hazards seem to break down under economic pressure.





GENDREAU

## THE BUILDING INDUSTRY— *Maker and Breaker of Booms and Depressions*

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**A**LTHOUGH its importance has barely been recognized until recently, the building industry is probably the most strategic single factor in making or breaking booms and depressions. In this respect it is not second even to agriculture.

The basis for importance of building as an economic force is two-fold. On the one hand, building production and employment are, as shall be discussed later, the least stable of all the major industries. On the other hand, in its size and ramifications of influence, building is one of the largest single industries in the economy. Gross value of construction in the United States during 1919-1935 averaged \$8,000,000,000 a year, compared with the nation's net income of \$64,000,000,000.<sup>1</sup> Three million workers were reported by the census as being attached to the construction industry in 1929, of which 2,500,000 were

actually employed.<sup>2</sup> Some of this construction and employment, of course, represents non-building construction activity, but even this tends strongly to rise and fall in sympathy with building.

Significance of building fluctuations does not stop with construction alone, but spreads to all industries relying on construction for markets. The 3,000,000 men attached to construction in 1929 included only those employed directly at the site. In addition, for every hour of employment given on the site, another two and a half hours, according to the Bureau of Labor Statistics' estimates, are given in producing and handling construction materials and

equipment.<sup>3</sup> If this ratio is correct, total direct and indirect employment given in 1929 must have been nearly 9,000,000 men. In the same year, perhaps 1,750,000 men, to the extent they could not get work elsewhere, could blame their unemployment on construction.

These estimates do not include real estate or furniture and related industries, activities strongly influenced by new building. All in all, most of the rise and fall in the durable producers' and consumers' goods industries, estimated at \$21,000,000,000 annually for 1919-1935, is probably inextricably bound up with the rise and fall of the building industry. Add to this the reflection that durable goods industries cannot fail to sway the service and quickly-consumable-goods industries, and the dynamic power of building construction needs no further urging.

<sup>1</sup> S. S. Kuznets, *National Income and Gross Capital Formation, 1919-1935*. New York: National Bureau of Economic Research, 1937, p. 42.

<sup>2</sup> *Fifteenth Census of the United States, 1930, Unemployment*, Vol. I, p. 15.

<sup>3</sup> Herman B. Byer, "Employment Resulting from PWA Construction, 1933 to 1937," *Monthly Labor Review*, Vol. 46 (1938), pp. 16-26.



*Cycles in non-residential building, torn with blind movements, have not been as even as those in residential construction.*

Construction of new buildings occurs in long waves averaging from low point to low point eighteen or nineteen years. Since the Civil War four of these waves have come and gone, their turning points marking the most exciting and memorable episodes in the nation's history. The earliest of the four began with Civil War inactivity and upon conclusion of peace rose rapidly to a high level during the late 1860's and a peak in the early 1870's; the subsequent decline thus anticipated the panic of 1873 by one to three years. As reflected by the money value of building, the cycle was completed in 1877-1878 or, as reflected by physical volume, in 1880—after a drastic and persistent decline lasting throughout the greater part of the 1870's.

### Next Cycle

The next cycle recovered slowly. Substantial volume was not attained until the middle of the 1880's and peaks in various branches of the industry ranged from the late 1880's to the early 1890's, during and after the boom in railroad construction. The decline of the nineties took place in the face of the 1892 prosperity in manufacturing and trade and, with some exceptions,

Recovering gradually during the active prosperities of 1901 and 1902, the pre-war cycle gathered speed all through the recession of 1903-1904, and maintained a plateau from 1905 to 1916. America's entry into the war was undoubtedly a direct and violent cause of declines in 1917 and the trough in all classes of building in 1918. Indeed the high level sustained through 1916 and the precipitous fall thereafter suggest that had the war not occurred at that time the cycle might well have ended several years later.

Like the cycle following the Civil War, the cycle after the World War began with an exceedingly rapid revival. Checked only briefly by a recession in 1920, building rose during the early twenties to perhaps the most spectacular boom ever known. In spite of some wide variations, the peak year 1925 may be designated as a highly typical turning point. After 1925 the volume of building began to decline, first gradually and then following 1929 with startling velocity, until the trough was reached in 1933-1934. In the five or six years since, the trend of the volume of building has been persistently upward. Nevertheless, recovery of building has lagged heavily be-

preceded the panic and depression of 1893 by one to six years. Gathering momentum with the deep depression and extensive unemployment of 1894 the decline ended in a trough about the turn of the century. On the whole this building depression was a rather mild one, with the money value of non-residential building hardly more than declining in its rate of increase.

hind recovery in general business.

As indicated, the average length of cycles since the Civil War has been eighteen or nineteen years. Close agreement may be found between the various building types; for example, the length of the cycle from the World War to the early thirties is practically the same for both residential and non-residential building. Wide differences, however, characterize the lengths of cycles in different periods. The cycle following the Civil War lasted only fourteen to sixteen years; the last cycle in the 1800's lasted 21 to 23.

### Timing

Considerable individuality is manifested in the timing behavior of the different classes of building. Cycles in residential building show a rather even sweep and a surprising amount of synchronism from city to city. Cycles in non-residential building, on the other hand, seem torn with blind movements and synchronize rather less closely.

Comparisons between building cycles and business cycles are often rather difficult to make because of lack of one-to-one correspondence. But periods of very severe business depression have been on the whole periods of severe depression in both residential and non-residential building. This is brought out by comparison of the long cycles with business movements as reflected by W. L. Thorp's *Business Annals*.<sup>4</sup> The same comparison shows also that building displays an unmistakable tendency on the downturn of a serious depression to *precede* general business and on the recovery from a serious depression to *lag behind*. During a major war, both residential and non-residential building are badly depressed, even though business conditions as a whole may be extremely active. At such times, residential building falls to especially low levels. In both classes of building, recovery after a war is very rapid.

It has already been remarked that in

<sup>4</sup> New York: National Bureau of Economic Research, 1926, pp. 129-145; *News-Bulletin*, No. 43, 1932.

the severity of its fluctuations building is not surpassed by any other important industry. In comparing the trend cycle amplitudes of 99 industries Arthur F. Burns has shown that building permits manifested cycles at least twice as wide as those of 70 industries and at least three times as wide as those of 40. Even measured by physical volume, the building indexes reveal fluctuations as great as 98 per cent a year, and for individual cities annual fluctuations in a single cycle not uncommonly average as much as 400 per cent, and sometimes as much as 1,500 or 2,000 per cent. With each cycle since 1878-1900 the severity has increased. The post-war cycle was six times as severe as the pre-war cycle and fifteen times as severe as the last cycle of the 1900's. It is important to note that residential cycles have been twice as wide as non-residential cycles.

Whether any rule can be formulated to explain the exact length of the building cycle is doubtful. Such factors as population, marriages, foreclosures, and employment do not offer any definite one-way causal relationship. Serious wars, influential in determining the

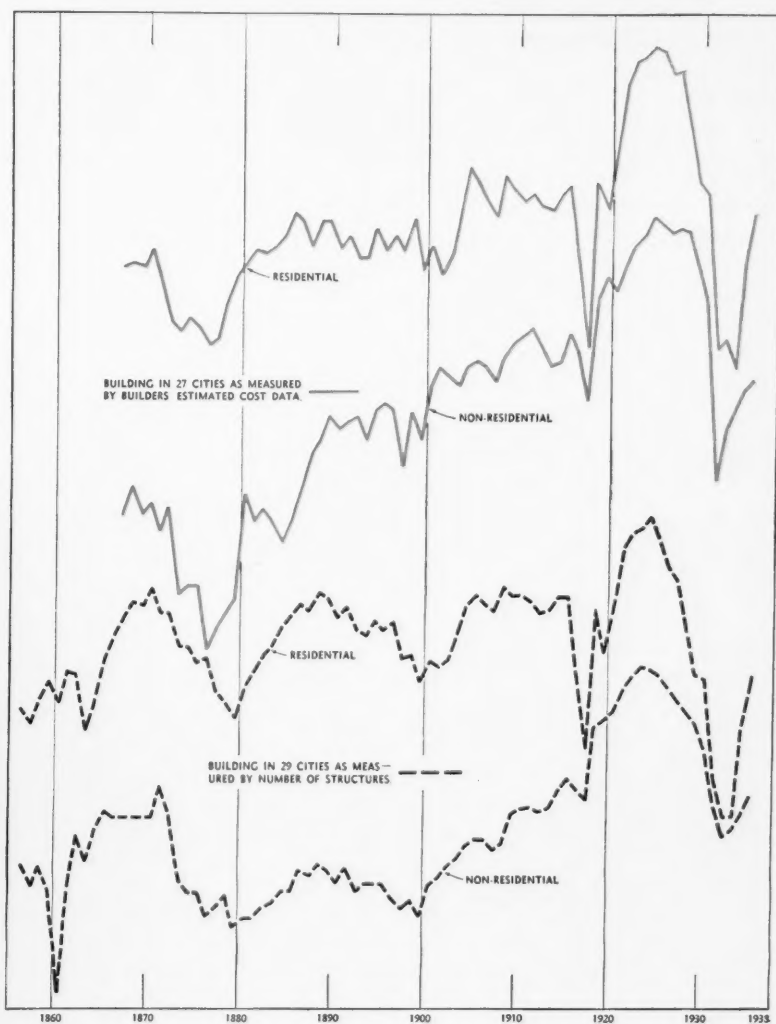
timing and severity, have not occurred often enough to explain the length of the American cycle. The length must be explained by reference to other factors, notably durability of buildings, standard of living, lag in the production process, and the customary degree of overbuilding during the boom.

The connection between durability of a commodity and length of the cycle in its production is generally recog-

nized, but does not explain why, if buildings can last a century or more, building cycles average less than a generation. Is it not conceivable that an important limitation on length is the standard of living? That people should under any circumstances wait until all buildings actually collapse before replacing them is unbelievable. If the population refuses to contract its living standard more than, say, 25 per

#### INDEXES OF RESIDENTIAL AND NON-RESIDENTIAL BUILDING IN THE UNITED STATES, 1855-1938

(Semi-logarithmic chart, equal vertical distances show equal percentage changes; cities are in general the most populous ones, account for a substantial part of all building.)



For every man-hour of work on the site of construction, there are two-and-a-half hours of work in producing and handling the construction materials and equipment.

DOUGLAS FROM GENDREAU





cent the postponing of building must be less, and the building cycle shorter, than if the population were willing to tolerate a reduction of 50 per cent. The standard of living may explain then why building cycles have not lasted as long as they conceivably could. But what has determined the minimum length of the major building cycle?

### Production Lag

A primary factor is undoubtedly the lag in the production process. It is not possible to specify the length of this lag. Only a small portion of the lag is the time required to erect a building. After years of depression the supply of contractors and skilled workers is depleted, and considerable time and rather certain prospects of profits and employment are required to attract a new construction and build up industries supplying materials and machinery. At the same time, building prosperity induces prosperity in consumption industries. As building expands it must bid against these industries for the diminishing capital and labor available. The great size of the industry intensifies this difficulty. It cannot tap the odds and ends of unemployed reserves. Thus, many years are required for the building industry to catch up with the demand. This lag in itself tends to set a minimum length to the building cycle. It also tends to lengthen the cycle by helping, through inflation of rents and prices during the

period of unsatisfied demand, to cause overbuilding during the boom.

The great severity of cycles in all types of durable goods production is commonly explained in this way: because of durability, production of capital goods fluctuates, not with total population, total income, or total consumption goods activity, but with advances and retardations in their increases. Since fluctuations in the increase of most of these phenomena are wide, cycles in capital goods are bound to be wide also. The fact that buildings are the most durable commodity produced by any important industry may help explain the greater severity of building cycles. Nevertheless, considerable emphasis should be placed (1) on lags in the production process which we have already discussed; (2) on ready-made production for a future and unknown market; (3) on the importance of out-of-pocket costs and rigidity of these costs; (4) on confidence about the very distant future; and (5) on serious wars.

Some have wondered whether further development of ready-made houses—still a durable commodity—might lessen fluctuations in the construction industry. It appears, however, that even if demand for durable goods were known exactly, there would still be extreme fluctuations in the production of them. When buildings are built “ready-made” for estimated markets by thousands of individual contractors, there

is opportunity for even greater fluctuations. In this factor, indeed, may be found a clue to the explanation of the greater amplitude of residential cycles, in which speculation is predominant.

Speculation may also explain the increased severity of building fluctuations in recent years. Since 1900 and especially since the World War, advertising of new, already erected structures has been extensive and has extended not only to dwellings but also to store, office, and loft buildings. The increased speculation has been aided by the development of automobile commutation.

But speculation could not have increased without an increase in mortgage financing. Every decade since the 1880's has brought an increase in the percentage of debt and a decline in the percentage of cash that changes hands when a building is transferred from one owner to another.

### Psychology

This practice of “trading on the equity” has not only encouraged speculative construction; it has permitted purchase of buildings on anticipated income, rather than on already accumulated savings. Anticipated income being largely a matter of confidence, building activity is placed further at the mercy of the psychological. During the exuberance of the boom, a much larger volume of construction can take place than would otherwise be possible. More workers and capital are attracted to the industry. Consequently, when the “bunched” construction needs of the

*Important in determining the length of building cycles is the standard of living; though buildings may last a century, the cycles average less than a generation.*

APARTMENT BUILDING, SCARSDALE, NEW YORK—PHOTO BY GENDREAU





nation are satisfied, the fall must be from a greater height. And the huge amount of real estate on the market at such times, as the result of foreclosure or of effort to escape from debt burdens too great for incomes actually materializing, causes the drop to be greater.

The indictment of the building industry on the charge of unyielding cost elements is a long-standing one. Tied in closely with the problem of rigid cost is the fact that building costs are mainly out-of-pocket costs which may be avoided by suspending operations. All equipment owned by reporting construction establishments at the end of 1929 was valued at only 7 per cent of the total business done during that year.<sup>5</sup> The great bulk of expense is for labor and building materials. Builders are under no compulsion to continue operations when rents and prices decline appreciably below cost. They simply drop out of business.

The more durable a good, the greater the extent to which confidence affects the rate of profit, and the longer the period over which any given change in the rate of interest makes itself felt. Although historically interest fluctuations have not exhibited convincing correlation with movements in building construction, this does not disprove the relation of interest to building cycles; the significance of interest lies not in rate itself, but in whether the rate of interest is above or below the rate of profit. Interest rates are not less rigid than other costs, but profit is highly fluctuating. Nearly every factor affecting profit involves a guess concerning the future. In case of extremely durable goods, rate of profit becomes

really another word for confidence.

An example appears in the ratios of advertised selling prices of New York apartment houses to gross annual rents claimed for these apartment houses. It was found that for properties enjoying a given amount (say \$10,000 annually) of gross rents the sellers asked much

thing, construction is usually expressly prohibited in order to ration the economic resources of the nation. During the World War, Priorities Circular No. 21 (together with supplements) decreed "that except by special permit no new non-war building construction should be undertaken involving an expenditure of more than five hundred dollars and no extensions costing over twenty-five hundred dollars."<sup>7</sup>

But government prohibition is not the sole explanation for the wartime decline of building. All countries for which data are readily available showed the stagnating effect of the war on building—whether those countries were belligerent or neutral. Warren and Pearson in *World Prices and the Building Industry*<sup>8</sup> present data graphically for building in a number of European cities. According to those charts, not only did building decline to very low levels in belligerent countries such as England, Scotland, Canada, and Germany (as indicated by experience in London, Glasgow, Berlin, and Hamburg, and about 35 cities of Can-

ada); it fell off equally heavily in the neutral countries of Sweden (Stockholm) and the Netherlands.

There are, evidently, other and perhaps more important explanations for wartime decline in building. One is the fall in flow of real income due to diversion of energy and resources to war purposes. Another is increased cost of construction because of war demand for wood, cement, steel, skilled laborers, and transportation facilities.

(Continued on page 50)



BAUER FROM NESMITH

*Cycles in residential building show a rather even sweep and a surprising synchronization from city to city.*

more during the boom of building than during the building depression. By inducing fluctuations in ratio of profit to interest, changes in confidence thus contribute to the severity of building cycles.

A severe war stops nearly all residential building and a considerable volume of non-residential building.<sup>6</sup> There are a variety of reasons for this. For one

<sup>6</sup> Even a minor war can be discouraging to building. In regard to the Spanish-American War, V. S. Clark writes: "But while Government orders piled in upon manufacturers, building operations were for a time checked or suspended and some of the leading steelmakers doubted whether the total effect of hostilities was beneficial to the trade." *History of Manufacturers in the United States, 1860-1914*. Washington, D. C., Carnegie Institution of Washington, 1928, p. 632.

<sup>7</sup> G. B. Clarkson, *Industrial America in the World War*. Boston and New York: Houghton-Mifflin Co., 1923, p. 187. This circular seems to have been in effect only a short time.

<sup>8</sup> New York: John Wiley & Sons, Inc., 1937, pp. 119-131.

*Procrastinator and spoon-swinger though he may be, his supper will keep warm and reasonably safe in this plastic ware, molded by Auburn Button Works, Inc. The black phenolic base holds warm water; cup and food tray of urea will stand more dropping and banging than crockery.*



## THE RISE *of* SYNTHETIC PLASTICS

E. F. LOUGEE

*Editor, Modern Plastics*

**S**LOWLY but surely the plastics industry is becoming an economic entity of importance. It is allied with manufacturing in so many fields and interwoven so thoroughly with general industry and commerce that producers and distributors outside the plastics industry must make adjustments to accommodate the popular acceptance of these man-made materials. Inside the industry, this acceptance has crystallized into definite demands which the manufacturers of plastic materials and the builders of plastics' processing ma-

chinery are still struggling to meet.

Although plastics of synthetic origin (as opposed to such natural plastics as clay and rubber) have been with us since Hyatt discovered celluloid nearly 80 years ago, they never got a real foothold in industry until Baekeland discovered Bakelite about 30 years ago. Baekeland's material possessed none of the inflammable properties of celluloid, was a much harder plastic, and soon proved its exceptional worth as an electrical insulator.

It has been within the past ten years,

however, that plastics have made their greatest advances in competition with other materials. New plastics have been developed by the dozen. Some are so new that their potentialities have not been determined with any degree of certainty, but there is every indication that many of them are of great importance, possessing as they do peculiar physical characteristics of value to both industry and commerce.

So many discoveries, so many claims and counter-claims, naturally have led to confusion in the minds of manufac-

turers who are alert to the advantages of plastics and seek to use them in their own production plans. Publicity has been excessive and exciting, if not always accurate. Feature writers have envisioned the miracles of plastics until the business man, befuddled into expecting and demanding all sorts of impossible uses of the materials, is disappointed when he learns that many of his demands are not within the realm of possibility.

Every experiment in a research laboratory which ends with an accidental deposit of a gooey mess in a retort immediately leads the experimenter to suspect he has come upon a new plastic. Frequently hysteria prevails. "Each new smell emanating from a research laboratory," it has been said, "is considered by the press to be worthy of front-page space."

So there is little wonder that confusion exists.

### Variable Formulas

No miracles are performed with plastics. They are fundamental materials just like wood, steel, rubber, and glass. Their manufacture is well stabilized, and the dozen or more companies making them maintain intensely active research divisions which constantly are seeking improved properties and better methods of molding and fabricating. Plastics differ from some other basic materials principally in that their properties may be definitely controlled and changed by varying their chemical formulas.

This versatility has given the designer and engineer new tools with which to work—new materials they never had before. And their natural ingenuity and keen concept of the utility of plastics have been responsible since 1933 for increased production of about 350 per cent.

If we were to go back to 1921, the increased production figures would be even more impressive; in that year there were produced only 1.65 million pounds of plastics, to contrast with 162 million pounds in 1937.

### PRODUCTION OF SYNTHETIC RESINS IN THE UNITED STATES, 1921-1937

Year	Millions of Pounds	Year	Millions of Pounds
1921 . . . . .	1.6	1931 . . . . .	34.2
1922 . . . . .	5.9 <sup>1</sup>	1932 . . . . .	30.9
1923-1926 . . . . .		1933 . . . . .	45.2
1927 . . . . .	13.5	1934 . . . . .	59.6 <sup>2</sup>
1928 . . . . .	20.4	1935 . . . . .	90.9 <sup>3</sup>
1929 . . . . .	33.0	1936 . . . . .	132.9
1930 . . . . .	30.9	1937 . . . . .	162.1

<sup>1</sup> Not available.

<sup>2</sup> Estimate.

<sup>3</sup> Coal-tar resins only.

Source: *Synthetic Resins and their Raw Materials*, United States Tariff Commission.

In the beginning—in the world of synthetic plastics—Hyatt experimented with chemistry in the hope of finding a substitute for natural ivory in the manufacture of billiard balls. His discovery, celluloid, was achieved by treating cotton or wood fibers with nitric acid and solidifying the mass with camphor. Being closely related to gun cotton, celluloid burns when touched by flame, but in spite of this it was promptly adopted for the manufacture of many familiar products.

Further experiments disclosed that celluloid could be colored and pressed into cakes, then sliced into sheets. From these sheets plastic combs (formerly made of rubber) and brush and mirror backs (formerly of wood) were stamped out in lively colors. Hair ornaments of the Gay Nineties consumed plenty of this comparatively new material, which supplanted conventional metal, rubber, and shell. From the same sheets plastic jewelry got its start, displacing in some instances metal, glass, and semi-precious stones. Brilliant colors created a substantial market for the plastic material in inexpensive jewelry.

### Celluloid

It was this cellulose type of plastic which gave us our first wind-shield and side curtains for the horseless carriage; our first fountain pens in lively colors; our first photographic film; our first safety glass interlayer (which soon acquired an amber hue or separated so you could hardly see through it); our first unbreakable watch crystals, optical frames, and so on through thousands

of familiar objects which still are being made of this tough, moisture-resisting material. Approximately 9.6 million pounds were produced during the first nine months of this year; nearly 14.8 million pounds were reported for the same period in 1937.

Plastics of the sort which resulted from Bakeland's research, derived basically from coal-tar and formaldehyde and known in the industry as "phenolic," have proved to be the most important in quantity, value, and variety of application. The output has increased from about 15 million pounds in 1932 to approximately 80 million pounds in 1937. Most recent available figures indicate that about 40 per cent of the consumption of these tar-acid or phenolic resins was in molded products, 25 per cent in paints and varnishes, 20 per cent in laminated or "sandwich" products, and 15 per cent in miscellaneous uses.

Soon after their appearance phenolics replaced porcelain and molded marble



For its smoothness, strength, and light weight a tar-acid resin plastic has been adopted for record racks, molded by the General Electric Company.



dust and shellac in electrical sockets and plugs because of their greater strength and resistance to heat. They increased, too, the scope of the button industry by supplying a material that was generally cheaper to use than bone, shell, or nuts—products of nature which were often imperfect and caused much waste.

### Uses for Phenolics

Their first contribution to the automotive industry, perhaps, was in the form of insulation. Then distributor heads were made more dependable and less troublesome in operation; contacts could be molded in place with extreme accuracy of position. Timing gears were made silent by introducing a plastic gear. Door bumpers were given longer life, because the plastic material was more resistant to wear than the rubber it replaced. Brake linings were made more satisfactory by the addition of liquid resin, which reduced the tendency to "burn."

Today plastics in automobiles amount to about sixteen pounds for each car produced. The 1940 Fords have forty-odd parts made completely or partially from these materials, and the many interesting experiments being carried on by that company suggest that there may be even more extensive use of plastics before long. Among other things, trunk compartment covers like those of the Mercury are being laminated from felt, impregnated with various resin liquids, and pressed in a huge mold. None of these have been released in production cars, but experimental samples are so tough that four men can stand on the molded cover without denting or damaging it in any way. Another test has been to strike the trunk compartment cover sharply with a cloth-covered ax; so far the ax is reported to have made no dents in the cover.

The plastic cover weighs about half as much as the present ones and is less costly to produce; a new die capable of molding six trunk compartment covers at one pressing has recently been completed and put into experimental pro-

duction. About a hundred compartment covers are already on test cars in the Detroit area.

Plastics, in their industrial applications, do not always replace other materials. Frequently they make things possible which could not have been accomplished in any other way. There are, for example, the plastic thread-advancing reels developed this year by the Rayon Machinery Corporation, which have made practical for the first time continuous spinning and processing of viscose rayon yarn. New and higher standards of yarn quality and uniformity are reported to have been attained by the individual thread treatment of these ingenious mechanical handling devices which reduce from days to minutes the time required to process yarn completely. More than 86,000 of them are in operation at the Industrial Rayon Corporation's new plant at Painesville, Ohio.

Six years of research preceded the adoption of a plastic material for the basic reel members. Experiments seemed to demonstrate that the necessary characteristics, accurate molding, great physical strength, and the capacity to withstand warm, corrosive liquids in continuous operation, could not be obtained with any other material.

### Ureas

Another important heat-hardening type of plastic, "urea," is made by condensing urea and formaldehyde, first done in 1897, but not perfected in the United States until 1929.

Urea plastics are the indirect product of four gases; ammonia and carbon dioxide react to make urea, and hydrogen and carbon monoxide yield methyl alcohol, which is turned into formaldehyde. The resulting resin is transparent, but it requires a filler, such as alpha cellulose, to make it into a molding compound. The filler destroys the transparency, but permits the manufacture of translucent articles in a wide range of soft colors. "Ureas" are odorless, tasteless, and resistant to grease and oils. They have been used exten-

sively in the manufacture of molded cosmetic containers.

The ureas serve well in electrical and industrial applications, but they have found application mostly in molded radio housings, decorative automobile accessories, jewelry, weighing scales, and other molded articles for which pastel shades help find a market. In recent years they have become important in lighting reflectors and shades, because they are lighter in weight than glass, yet have equal or superior light diffusing properties which can be accurately controlled.

Tableware, used by air lines and in picnic kits, is made from this material in striking combinations of color. Its light weight, lustrous surface, and durability recommend urea plastic for such purposes.

### Tough Surface

Urea resins in syrup form are used for impregnating or saturating paper for laminating. They provide the "color sheet" which appears on the surface of light-colored laminated products; the urea will not yellow with age. Also, a sheet of paper saturated with clear urea resin is used for surfacing real wood laminates, for when it is pressed, the sheet becomes completely transparent, permitting the full beauty of the wood grain to appear as the decorative motif while, at the same time, providing a surface which has the protection of a plastic which will not easily scratch or mar.

Commercial production of urea resins in this country in 1935 was about 4,250,000 pounds, with a dollar value of a little less than \$2,000,000. No figures are available since that year because their publication would reveal the volume of the two companies which are engaged in manufacture of this type of plastic material. It is safe to say, however, that both concerns are right now enjoying the greatest volume of business in their histories.

To the layman the generic names of the various plastics are often strange and confusing. Still, phenolics, ureas,



and so on are just as much engineering and industrial materials in their own spheres as are phosphor-bronze, or molybdenum, or chrome. It is to the advantage of business men to know plastics by name and to be able to distinguish the properties of one from another in order to specify proper materials for the particular purpose they may be seeking to accomplish.

The type of plastic known as "cellulose acetate" had its beginning in 1908. The Eastman Kodak Company completed in that year experiments which resulted in a plastic similar to celluloid (or pyroxylin as it is sometimes called) but less inflammable. The new plastic was made from the same cellulose fibers of the tree, and from linters which cling to cotton seeds after ginning, but instead of treating them with nitric acid to bring them into a soluble mass the Eastman formula called for acetic acid (vinegar) and acetic anhydride. Thus the new plastic was christened cellulose acetate.

It was not until 1921, however, that the manufacture of cellulose acetate was begun on a large commercial scale. About that time, the Eastman Kodak Company established for its production a subsidiary company called Tennessee Eastman Corporation. Almost at once there was a healthy demand for the new material. It rapidly replaced celluloid as safety glass interlayer, because it had greater resistance to the action of the sun—it was less likely to turn yellow with age. In photographic supplies it could be handled more safely than its predecessor because it was less likely to catch fire. Cellulose acetate will burn, but with the consistency of rolled paper rather than the furious flaming of nitrate material.

Products fashioned from celluloid had been cut and stamped from sheet stock with considerable waste of ma-



*Clock and instrument panel in 1940 Nash cars are of cellulose aceto-butyrate plastic, other fittings of cellulose acetate, molded by Cardinal Corporation.*

terial; the new plastic could be molded, which almost entirely eliminated material losses. It quickly became popular not only for photographic and X-ray film, but also for combs, toiletware, and jewelry.

Now, practically every 1940 automobile has a steering wheel, gear shift knob, instrument panel knobs, ash tray covers, and door and window lifts molded of cellulose acetate in colors to harmonize with car interiors. In some instances entire instrument panels are made of the materials; in others they are combined with metal and other plastics in molding or assembling.

#### Acetate Products

Buttons by the million in every color of the rainbow, hat brims and ornaments, bag tops, sun glasses, and toys are included among its uses. Molded heels for women's shoes cannot break because there is no cross grain as in wood. The surface color of the heel goes all the way through; it cannot scuff or chip off.

Zipper, radio grilles, fish lures, colored telephones, door hardware, sports goggles, industrial goggles, and lampshades are but a few of the common, everyday products that account for the 14.6 million pounds of this type of plastic produced during the first nine months of this year. A substantial part of this rapid growth may be attributed to the recent advance in injection molding, which is a near approach to automatic manufacture of plastic products.

Cellulose acetate is produced in molding compounds and in sheets, rods, and tubes.

Just as plastics frequently replace other materials because they are cheaper or have some intrinsic advantage, so does a new plastic often replace an older one because of some marked improvement in physical properties and characteristics.

It is not surprising, therefore, to learn that a new plastic called vinyl acetate has already replaced cellulose acetate as safety glass interlayer, because it has been found to be more stable under varying temperature conditions. It is also less difficult to apply; it is resistant to moisture and the edges of the glass do not have to be sealed. Vinyl plastics have found their greatest use thus far in sheet material. However, toothbrush handles are being molded in enormous quantities from this plastic because of its resistance to moisture.

On its way over the horizon is another new plastic, cellulose aceto-butyrate, which, it is claimed, will stand greater heat than cellulose acetate in molding operations and results in a finished product of greater strength.

The most transparent of all plastics, quite easily recognized by their crystal clarity, are the acrylates and methacrylates. Their first use in this country was for cockpit housings in aircraft. They will not shatter in a forced landing. They can be curved to shape simply by immersing in hot water and bending over a wood form. When cold they retain their new shape. The ease with which they can be handled and formed has brought them to the attention of decorators, whose imaginations have led them a merry chase.

This kind of plastic may be found in all sorts of decorative objects, from coffee tables which look like ribbon candy to chairs which have the appearance of

glass. Grotesque animals and table decorations, salad forks and spoons, and hundreds of other articles have replaced Czech glass which is no longer to be had. But if someone gives you a set of salad tools made of this material, better not wash them in too hot water, for they are likely to come out of the

and in solid blocks up to nine inches in thickness. In solid shapes, they may be sawn, drilled, turned, and engraved with ordinary woodworking equipment as can most of the softer plastics. Cutting the surface dulls it somewhat, but the luster may be restored by polishing with a rotary buff.

A peculiarity of this material, which quickly has been applied by the surgical profession, is its ability to transmit cold light around curves. A small light placed at one end of a solid rod will follow the rod no matter how many twists and turns it makes and issue from the other end with surprisingly small loss of brightness. While resisting water, oil, acids, and alkalis, the material transmits ultra-violet rays. It has high impact strength and will not shatter when broken.

#### Highway Markers

Industrial uses include inspection windows in various kinds of machines and instrument dials. It has been molded to prescription for eye glasses, but the number of molds required to make all prescriptions is an obstacle that has not yet been overcome. The product is much tougher than glass, less likely to break and shatter, and possesses the equivalent in optical correction. The surface is softer than glass, however, and scratches more easily.

Another promising use of the material is for highway markers. Reflectors,  $1\frac{3}{8}$  inches in diameter are assembled in a metal housing to form a double facing marker which is snaplocked to the top of a metal post. The posts are located so that the reflectors are accurately aligned three feet above the pavement where they reflect the light from headlamps, outlining the road and curves a great distance ahead. One of the first of such installations was on Michigan Highway No. 16, between Lansing and Detroit, at a reported cost of \$340 per mile. Another is in Westchester County, New York.

One of the best uses of the material is for transparent denture crowns which permit dentists to see exactly

how they fit the roof of the mouth. Dentists like the materials, too, because they can be mixed and molded with little difficulty.

Dozens of other plastic materials have also come into prominence during the past few years. Polystyrene, a clear transparent plastic (almost as clear as acrylate), is the most moisture-resistant of all molding plastics; it provides the greatest insulation in high frequency electrical apparatus, valuable especially for radio and television. Faceted plastic jewels of surprising brilliance and sparkle are being molded from the same type of material to supplant similar "stones" of glass formerly imported from Europe.

There are aniline, citric acid, adipic acid, diphenyl, furfural, and soy bean resins; resins from sugar and many more. Most promising of the agricultural surplus crop resins at the moment are those made in Brazil from coffee. Since the coffee bean is a cellulose of uncommon toughness and possesses within itself the ingredients of a synthetic resin, a low price plastic may be made available from this commodity. Lignin is another possibility in low-cost plastics, but so far there are few practical examples of its use.

#### Plastics from Milk

Still another plastic material is casein. The chief ingredient of casein plastics is milk, changed into granular form. These granules are ground in a flour mill or pulverized by impact and then thoroughly kneaded in a dough mixer with about 40 per cent water and coloring materials. The more water used, the softer the plastic and the greater the shrinkage when the plastic is finished.

The material is fed immediately into a heated cylinder press fitted with a rotating screw and nozzle through which the mass is extruded into tubes or rods. Sheets are ordinarily made by placing freshly extruded rods in frames and pressing in heated hydraulic presses. Sheets, rods, and tubes are hardened by immersion in a solution of formaldehyde for periods varying



From the molds of Westinghouse Electric & Manufacturing Company come completely finished refrigerator door liners, ready for one-piece assembly. The surface of the door liner is urea, laminated to a phenolic base.

pan looking like transparent spaghetti.

The acrylate and methacrylate plastics are similar in character, although made from slightly different formulas. The former are more elastic; the latter are harder and tougher. Both possess colorless transparency which is unaffected by age. They can be made in almost any consistency from a sticky liquid to a hardened mass. If hardened sufficiently, they become almost as brittle as glass and since they are much more expensive than glass, they are not manufactured in this form. They are available not only in sheets, rods, and tubes, but also in molding compounds

from one week to six months, depending upon the thickness of the piece to be hardened.

Buttons, buckles, beads, game counters, novelties, and trimming are the usual casein products. Casein is not capable of molding in the general sense of the term but many of the products, such as buttons, are cut from the freshly extruded material, pressed into shape, then cured or hardened by immersion in the formaldehyde solution.

#### Buttons and Buckles

The annual consumption of casein plastics in the United States as sheets and rods recently was reported to be about 112,000 pounds, and the amount converted into buttons and buckles between eight and ten million pounds a year. Casein also goes into paints and glue, but no accurate production figures are available.

The production of synthetic fiber

from casein has aroused considerable interest abroad. The problem was investigated by Dr. Antonio Ferretti from 1924 to 1935 and culminated in the manufacture of artificial wool by the Italian rayon company, Snia Viscosa, under the trade name "Lanital," meaning Italian wool. Fabrics are usually made with blends of 50 per cent Lanital and 50 per cent wool and are said to be suitable for uniforms, underclothing, and miscellaneous men's clothing. Moths do not like them, but certain bacteria attack the material when wet.

The Ford Motor Company is experimenting with "casein wool," and some excellent samples have been produced. Research and development work is also under way to utilize proteins from other sources than milk as raw materials for plastics. Chief among these are soy beans and zein obtainable from corn. The conversion of these materials into plastics suitable for injection

molding and into transparent foil for wrapping purposes are major objectives in the experimental investigations which are now being conducted in several laboratories.

There is more to the plastics industry, of course, than the mere manufacture of plastic materials. Several steps are required to turn them into usable products. Raw material suppliers, or those who make the plastic compounds, seldom turn them into products. This manufacturing process is carried on by about 150 independent molders, laminators, and fabricators who fashion the materials through varying processes into industrial and decorative parts, which in turn are assembled and distributed by a significant fraction of all industry.

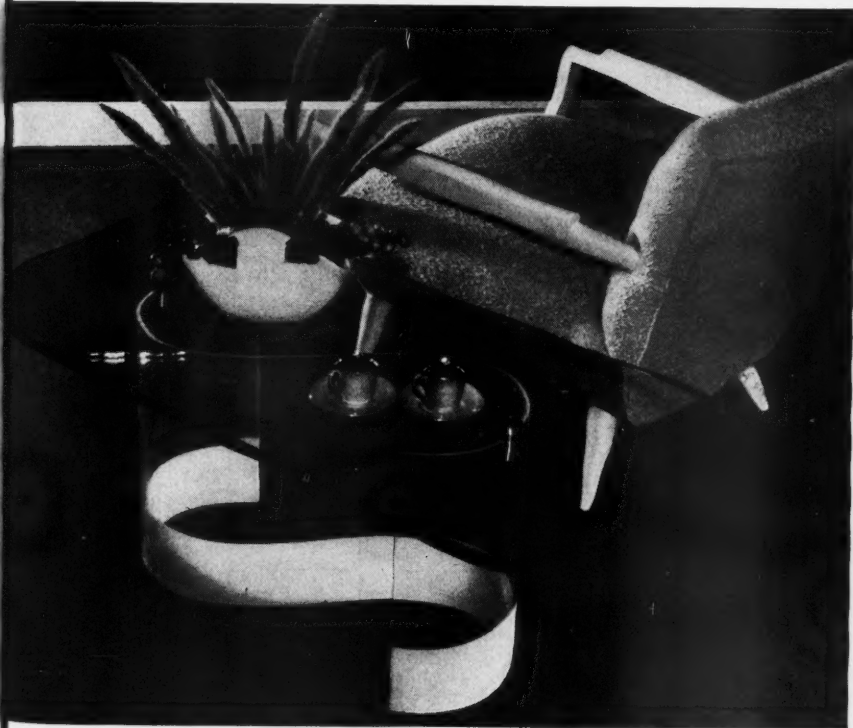
#### Molding Equipment

Early plastic molding was accomplished on presses left over from the rubber and shellac molding industry, and it is only within the past few years that more specialized machinery has been developed. Now there is an epidemic of automatic presses for both compression and injection molding which point toward a revolutionizing of both methods with resulting efficiency and economy of production.

Heat-hardening resins, such as phenolics and ureas, are formed by compression molding. Compounds, either as powder or compressed into pills for convenient handling, are placed in a mold between two heated plates and subjected to considerable heat and hydraulic pressure. As the material softens and flows into every corner of the mold and is pressed into shape, it undergoes a complete chemical change which renders it practically infusible once the molding cycle has been completed.

It is only within the past two years that automatic presses for compression molding have entered into the picture, beginning with a multiple-ram rotary press adopted for the molding of bottle closures. The next automatic press to appear consisted of a single ram of

*In glass-like plastics furniture designers have a material which they can bend and shape at will. This coffee table has a plate-glass top which rests on a ribbon of Plexiglas (acrylic resin) frosted at the bottom edge by a sanding process.*





limited size for molding small parts. More recently there has been developed a side-ram press which automatically molds complicated parts not possible to produce on other types of presses. Now there is an automatic press which handles two molds at a time. While one is being loaded with powder, the other is between the platens of the press, which reduces to a minimum the time wasted during exchange of molds.

### Robot

At the beginning of this year one of the pioneer companies in plastics molding built a robot press which takes care of all the conventional operations of compression molding with scarcely any human attention. No new principles were introduced but from a drum of molding compound at one end of the press molded parts flow to the other end in rapid fashion. The compound is carried aloft by a conveyor which distributes the material through small

tubes to measuring cups below. The cups carry the compound to a preforming device where it is compressed into small pills—tailor-made for the mold cavities they eventually are to fill—and heated electrically until the material is almost ready to undergo its chemical change. At the proper moment in the cycle the pills move forward, drop into their respective cavities in the compression mold, and the press closes.

When the correct curing time has elapsed, the press opens and the parts are automatically ejected into a rapidly moving hopper of wire mesh, where rough edges or parting lines are removed; no further finishing is required.

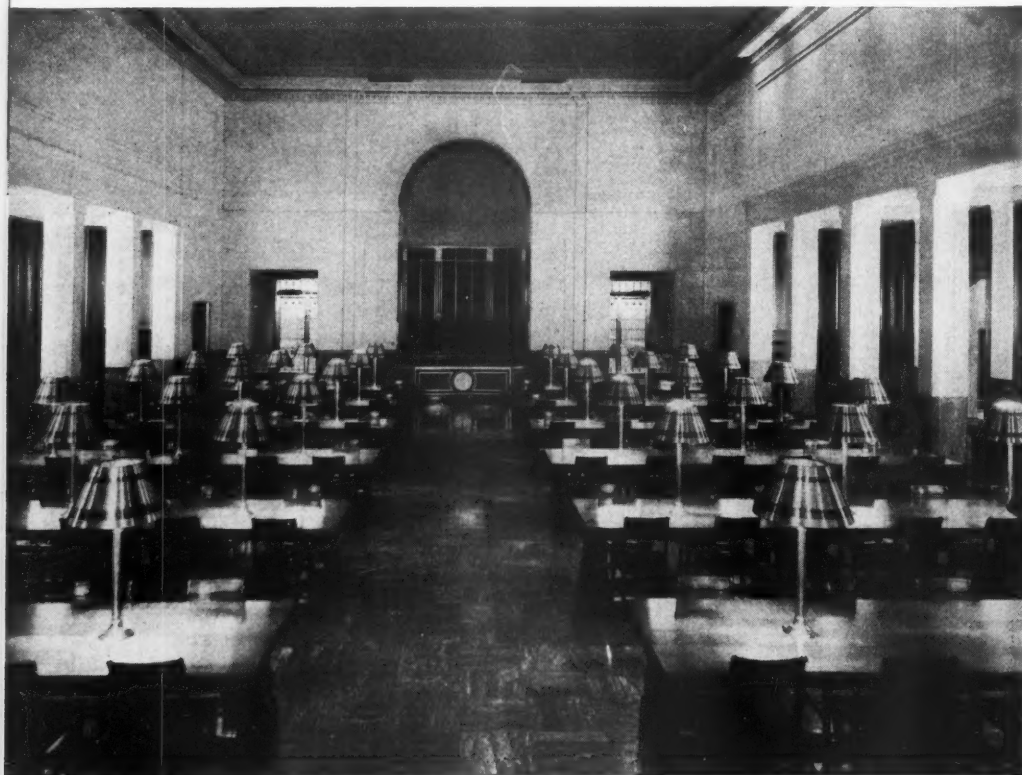
All operations are controlled by electrical timing devices, and there are more signal lights to indicate the proper or improper functioning of the machine than there are traffic lights in New York's Times Square. If anything goes wrong with the press (and something does occasionally) a bell

rings and colored lights flash to point out the exact source of trouble. Heat and pressure are automatically shut off so that no parts being pressed will be damaged. The operator adjusts the difficulty, and by the pressing of a single button production continues as before.

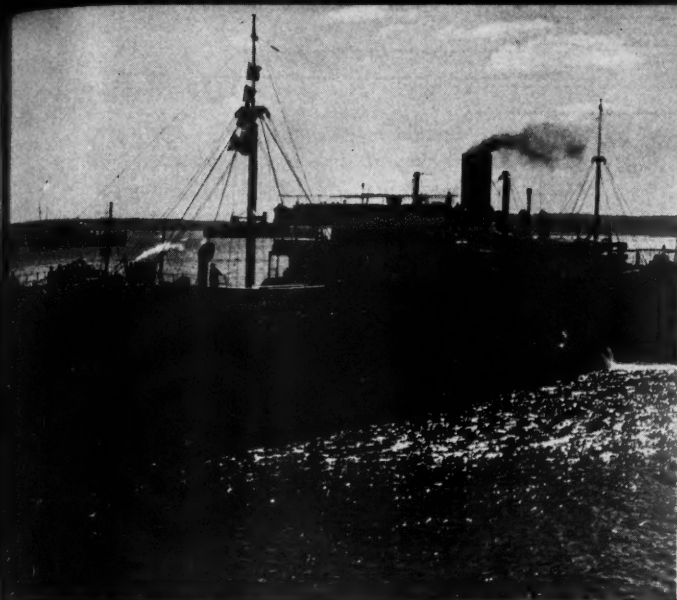
The president of the developing company maintains that Rube Goldberg had nothing whatever to do with the design of the press. But he is toying with the idea of rigging up a phonograph record so that when anything goes wrong the press will not only flash on lights, but yell to the foreman, "Hey, Joe, I need attention."

### Re-heating

Heat-softening resins, such as acetates, acrylates, and vinyls, are formed by heating until they are sufficiently soft to flow in the mold, then chilling so they will hold their new shape. These plastics can be re-heated and reformed again and again without any loss of physical properties. They may be molded by compression in the same manner as heat-hardening resins, except that they must be chilled while they are still in the mold. This is usually done by providing channels in the molds through which cold water circulates after the proper amount of heat has been applied. Since the press must be re-heated each time after the chilling operation, this process is slow, and for that reason injection molding has replaced  
(Continued on page 50)



*Much of the interior of the new Library of Congress Annex—table tops, delivery desks, wall paneling, bookshelves, drawer fronts, doors, and telephone booths—is of a laminated plastic material made by the Formica Insulation Company.*



ENTER City of Flint—PHOTO BY ACME

## BUSINESS DIARY

October 1939						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

### EVENT OF THE MONTH

*German crew captures United States freighter City of Flint, sailing her around the top of Scandinavian peninsula to Russian port of Murmansk as a prize under German contraband regulations.*

### DURING THE MONTH

*Steel leads in recovery of industry. . . . Peace scares and neutrality debate brake wartime speculation. . . . War is notable for absence of battles on land. Soviet makes inroads "by treaty" in Baltic States.*

**2** SUPREME COURT convenes for 1939-1940 term. Slowest session of stock market since outbreak of World War II.

**5** SOVIET-LATVIAN pact signed.

**6** HITLER in Reichstag speech demands peace on his terms or war of destruction.

**8** FTC charges five leading tobacco companies with Robinson-Patman Act violation. Wheat prices sink to lowest points since declaration of war. Yanks score again, winning World Series for fourth consecutive year. Paris coutouriers decide to reopen immediately.

**9** TRIAL of Government anti-trust suit against General Motors opens in South Bend. Supreme Court agrees to rule on three major labor cases testing NLRB powers. Chrysler closes Dodge plants in Detroit as result of "slow-down" strikes. Finland and Russia mass troops.

**10** PENNSYLVANIA Supreme Court holds State Fair Sales Act unconstitutional. Russia concludes pact with Lithuania.

**11** CHRYSLER unemployment spreads, affecting 50,000 workers. Anglo-Soviet trade pact signed.

**12** NEW YORK STATE Labor Board rules workers may reject all union bargaining. William Green re-elected AFL president. Berlin threatens "war in earnest" as Chamberlain refuses to accept Hitler's terms.

**13** CIO re-elects John L. Lewis.

**15** NATIONAL automobile show parades new models.

**16** SENATE eliminates credit clause from neutrality bill. Supreme Court agrees to review Chicago milk and Madison oil anti-trust cases.

**17** ELMER F. ANDREWS resigns as wage-hour administrator; Col. Philip Fleming appointed to take over duties.

**18** PRESIDENT forbids foreign submarines' use of United States ports and territorial waters. Silk futures and spot prices leap to highest levels since 1930.

**19** TURKEY, Great Britain, and France sign fifteen-year pact for mutual assistance in Mediterranean.

**21** GOVERNMENT's gold holdings pass \$17,000,000,000-mark, a new high.

**23** SUPREME COURT denies Government's appeal to try anti-trust suit against American Medical Association before action by a Circuit Court of Appeals. Nazis seize City of Flint, United States freighter.

**24** FORTY-TWO hour week and higher wages become effective under second-year provisions of Wage-Hour Act. SEC launches insurance survey. Tenth anniversary of the 1929 stock market crash.

**25** JUSTICE DEPARTMENT files suit against Association of American Railroads. War stocks reach best levels of month.

**26** ICC issues strict limitations for "contract" motor carriers.

**27** SENATE votes repeal of arms embargo, placing trade with belligerents on "cash-and-carry" basis.

**30** AMERICANS awarded \$50,000,000 in Black Tom case by German Mixed Claims Commission.

**31** MUSSOLINI drops pro-Nazi aides in shakeup.



ATLAS

## THE TREND OF BUSINESS

PRODUCTION . . . PRICES . . . TRADE . . . FINANCE

Pronounced caution in financial markets is in odd contrast to the near-record operations of industry. For the time being, business sentiment favors watchful waiting, and future buying is sharply below the September level. Stock and commodity prices have held fairly steady since mid-September. Except in industry, activity is still below the 1937 peak.

THE consolidation of recent gains, rather than further expansion, has been the keynote of domestic business activity during the past month. In industry and trade, there has been a re-emphasis on cautious purchasing policies and on inventory control. In stock

markets, speculative fervor has given way to virtual apathy.

Despite the decline in buying activity, the seller's position apparently remains strong. Prices, in individual instances, have receded from the September highs, but, on the average, have held practically unchanged. The Daily Commodity Price Index, which stood at 103.37 per cent of the 1930-1932 average at the end of August, and at 119.34 at the end of September, has fluctuated within a narrow range of 118 for the past ten weeks. On November 30, the last day for which it is available as this goes to the printer, it was 118.64. The Dow-Jones index of industrial stock

prices averaged 133.53 for the last week of August and 152.18 at the end of September. Since the beginning of October it has held between 154 and 150, the latest available figure being 150.02 for fourth week of November.

The contrast of these price averages

### Industrial Stock Prices

Dow-Jones Index (Weekly Average)				
	Aug.	Sept.	Oct.	Nov.
Week	1939	1939	1939	1939
I	143.16	138.99	150.43	152.21
II	139.09	149.09	150.62	149.91
III	138.5	154.17	153.19	150.34
IV	133.53	151.87	153.98	150.02
V		152.18		

with their highs in the 1936-1937 recovery is striking. At its peak in April, 1937, the Daily Commodity Price Index was up to 158.26, against the current level of 118.64, while the high of the stock price figure was 192.40 in the second week of March, 1937, compared with the recent 150.02.

And yet, industrial activity, as measured by the FRB adjusted index, was within 1 point of the last recovery peak of 121 during October and, according to preliminary reports, during November close to the all-time high of 125 which was recorded in June, 1929.

In the increase of the index to the present level, durable goods production has played a more important rôle than it did when the peak was reached in December, 1936. At that time, the adjusted index of durable manufactures stood at 116, the index of non-durable at 126; while for this October, the durable goods figure was 122 and the non-durable 117. Since last Spring, when the upturn in activity got under way, the adjusted figure for durable manufactures has advanced 51 points, the index of non-durable manufactures, 11 points.

Probably no better single indicator of this improvement in heavy industries exists than the rate of steel ingot production. Activity in October was at 90 per cent of capacity, and in the fourth week of November at 94 per cent. Actual volume of output in October

### Wholesale Commodity Prices

U.S.B.L.S. Index—1926 = 100

	Aug.	Sept.	Oct.	Nov.
Week	1939	1939	1939	1939
I	75.1	75.3	79.0	79.3
II	74.8	78.4	78.9	79.3
III	74.6	79.3	79.4	79.1
IV	74.8	79.5	79.2	
V		79.5		



was the largest on record, 2 per cent above the old peak of 5,286,000 tons in May, 1929.

Other durable goods industries which have made outstanding recoveries recently include machine tools, railroad and utility equipment, and shipbuilding. Automobile production got off to a fast start at the beginning of the new model season but for more than eight weeks has been impeded by labor difficulties in a number of leading plants.

A downward trend in public construction has been offset by well-sustained residential building and a sharp expansion in industrial work. Contract awards for industrial construction, as reported by *Engineering News-Record*, were three times the total for the corresponding 1938 period during September and four times as large during October.

Corporate financing, however, does not yet reflect an appreciable increase in capital expenditures. Flotations in October amounted to \$175,513,518, *The Commercial and Financial Chronicle* reports; this was above September's low

which is a more general index of domestic purchasing, was 89.0 in October, having moved up about 9 per cent from its low in July, against a high of 103.2 in 1937.

Foreign trade makes a better comparison than domestic sales, but even this has not yet recovered to the 1937 level. According to preliminary figures of the U. S. Bureau of Foreign and Domestic Commerce, the value of merchandise exports in October, exclusive of re-exports, was about \$323,000,000, 18 per cent over a year ago, but 2 per cent less than the peak two years ago.

So far, the gain in consumer income has lagged behind the industrial improvement. Since last May, when an

Living costs, which rose rather sharply between August and September, have since levelled off. The NICB index was down from 85.9 in September to 85.6 in October. Comparisons with the figures for the same period in both 1938 and 1937, which were respectively 85.8 and 89.5, show that average prices to the retail customer are actually

### Department Store Sales

Federal Reserve Board Adjusted Index  
1923-1925 = 100

	1936	1937	1938	1939
January	81	93	90	88
February	83	95	88	87
March	84	93	86	88
April	84	93	83	88
May	87	93	78	86
June	87	93	82	86
July	91	94	85	86
August	86	92	83	89
September	88	94	86	91
October	90	93	84	90
November	94	91	89	
December	92	89	89	

### Factory Payrolls

U. S. B. L. S. Index (Revised)\*  
1923-1925 = 100

	1936	1937	1938	1939
January	76.9	98.6	75.3	83.7
February	76.6	100.1	77.5	86.0
March	80.5	105.9	77.6	87.6
April	82.6	109.7	74.9	85.5
May	84.0	110.1	73.2	85.0
June	84.2	107.6	71.1	86.5
July	83.5	105.2	71.1	84.4
August	87.3	108.7	77.3	89.0
September	87.2	104.9	81.6	93.7
October	92.9	104.9	84.2	
November	94.4	93.3	84.4	
December	99.2	84.6	87.1	

\* Adjusted to Census totals for 1937.

### Industrial Production

Federal Reserve Board Adjusted Index  
1923-1925 = 100

	1936	1937	1938	1939
January	97	114	80	102
February	94	116	79	99
March	93	118	79	98
April	101	118	77	92
May	101	118	76	92
June	104	114	77	97
July	108	114	83	101
August	108	117	88	103
September	109	111	91	110
October	110	102	96	120
November	114	88	103	
December	121	84	104	

of \$90,194,150, but only because of the inclusion of two issues, valued at \$141,582,000, which were actually negotiated for in September.

From the point of view of consumer buying, as contrasted with the production of goods, the recovery is still far from matching the high levels of 1937. Department store sales, measured by the FRB adjusted index, were 90 per cent of the 1923-1925 average during October, 5 per cent lower than at the peak in 1937, although 6 per cent higher than in May of this year. The Trade Barometer (see pages 32-37, following),

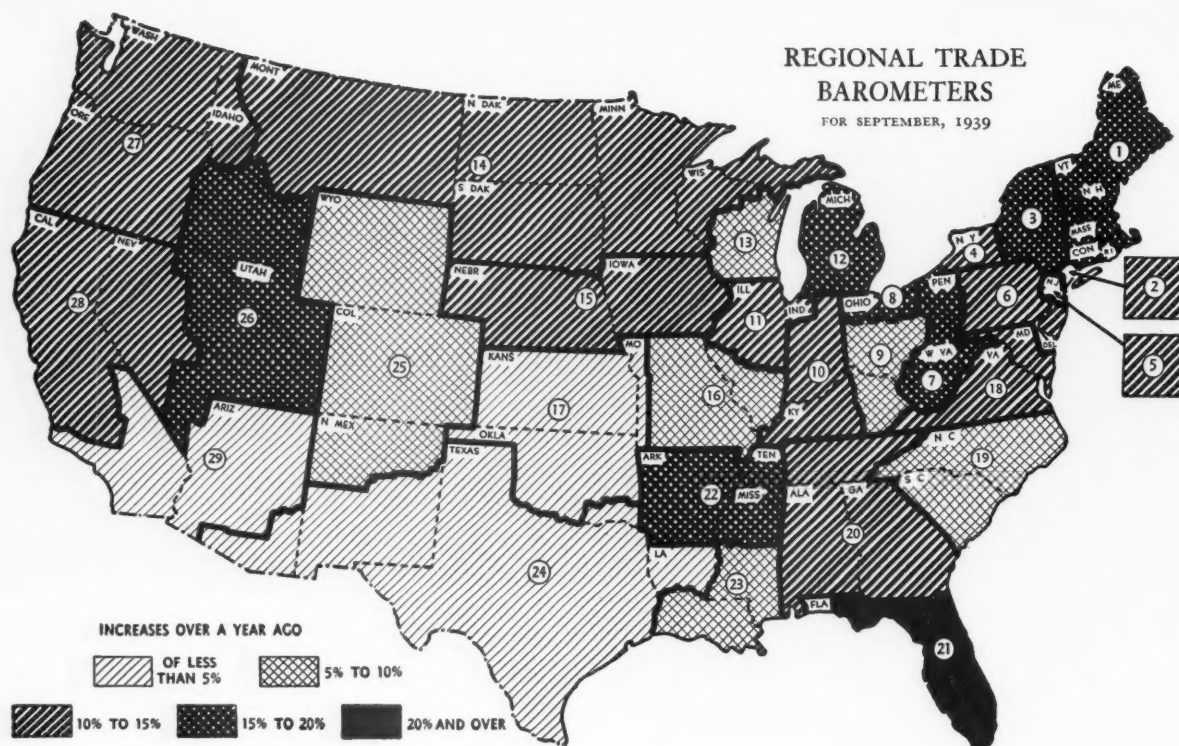
upward trend became noticeable, the FRB adjusted index of output has advanced 30 per cent and the BLS adjusted index of factory employment less than 10 per cent. The industrial payrolls figure which is corrected for seasonal variation by the *Annalist* shows a rise of 17 per cent.

The comprehensive index of national income payments computed by the U. S. Bureau of Foreign and Domestic Commerce stood at 88.3 per cent of the 1929 level in October, against the low for this year of 83.0 in April. This figure compares with the 1937 high, which was 91.0. Agricultural income, despite the increase recently which has resulted from the rise in prices, is still well under the peak receipts of 1937. The U. S. Department of Agriculture estimates that total farm cash income in 1939 will be \$8,300,000,000, compared with \$8,020,000,000 in 1938 and with \$8,988,000,000 in 1937.

lower. On this basis, it appears that real income, or the average consumer's purchasing power, at present is somewhat higher than it was two years ago.

There is not yet any adequate measure of the amount of inventory accumulation which has resulted from September's buying rush and from the relatively sharper advance recently in the production than in the distribution of goods. A study conducted by the National City Bank of the balance sheets of 45 leading manufacturing companies shows that their inventories at the close of the third quarter were valued at \$334,000,000, or \$36,000,000 more than three months earlier, and \$14,000,000 more than on September 30, 1938, but \$94,000,000 less than at the high point on September 30, 1937.

Manufacturers surveyed by NICB reported an increase of 3 per cent in stocks during October, following a decline of 1 per cent in September; holdings were off 1 per cent compared with October, 1938. Wholesalers' inventories, according to U. S. Bureau of the Census, were 4 per cent higher than in September—which had been 1 per cent over August—and 6 per cent above last October. The FRB adjusted index of department store stocks went to 69 in October, up 3 per cent from August and from a year ago.



## TRADE VOLUME CONTINUES TO EXPAND

*The United States Trade Barometer rose to 89.0 (preliminary) in October from 86.8 in September. Barometer figures are compiled by Dr. L.D.H. Weld, Director of Research, McCann-Erickson, Inc.; trade information is reported by the branch offices of DUN & BRADSTREET, INC.*

**C**ONSUMER buying reached new peaks during the first three weeks of November. Several factors proved favorable to the movement of seasonal merchandise in both retail and wholesale channels. The Election Day holiday, colder weather throughout most of the country, the approach of the Thanksgiving-Christmas holiday season, and the continued high rate of industrial activity all contributed to a general expansion in sales.

As in October, the most startling showing was made in fur and apparel lines, but there was indication of broad buying on all fronts. The inclination of customers to buy better-priced goods, and to invest in luxury items such as furs and jewelry, as well as in durable goods such as electrical merchandise and automobiles, was regarded by retailers as an especially promising development.

By November, retail merchants had adopted a somewhat more conservative attitude toward future commitments,

but wholesale buying continued active nevertheless. The volume of sales was supported largely by orders of gift merchandise, and by re-orders of apparel and other seasonal items.

A suitable background for early November's strong advances was found in the preceding month's activity. Despite excessive rain in some sections of the country during October, and despite unusually high temperatures in many places, trade volume expanded more than seasonally. The preliminary United States Trade Barometer registered a gain of 2.5 per cent over September, and the margin of increase over the 1938 comparative widened from 10.7 to 13.3 per cent.

Department store sales showed somewhat less than the seasonally expected increase for the month. Sales of new passenger cars rose sharply, however, due in part to the earlier introduction of new models this year, and the out-

standing gain in this line was largely responsible for the rise in the index.

The regional indexes—now available for September—show that in the first month of the European war twenty-two of the twenty-nine regions registered increases over the previous month; the U. S. index went up 4.2 per cent to 86.8. The largest gains—13.1, 10.4, and 21.8 per cent—were made in New England, Pittsburgh, and Detroit regions, respectively. The only decreases occurred in the Southern half of the country—Kansas City, North and South Carolina, Atlanta and Birmingham, New Orleans, Texas, San Francisco, and Los Angeles—but none of the drops exceeded 6 per cent.

Year-to-year gains were once more registered in all of the twenty-nine regions. Florida was the only territory which showed a gain of more than 20 per cent, but increases of more than 15 per cent were recorded in the New England, Albany and Syracuse, Pittsburgh, Cleveland, Detroit, Memphis, and Salt Lake City regions. Los Angeles, with a gain of only 2 per cent over a year ago, made the poorest comparison both with last year and with last month.

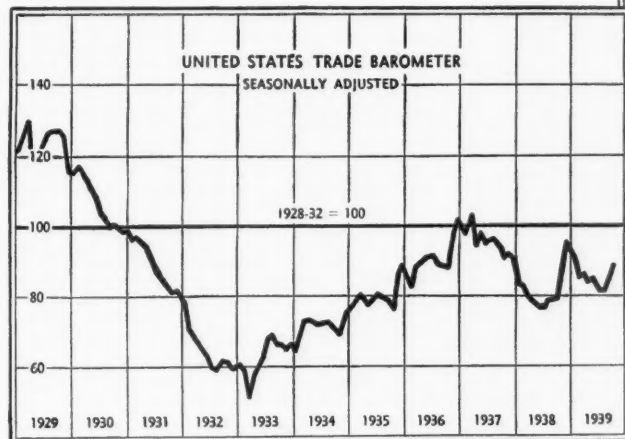
THE MAP AND CHART compare the September, 1939, indexes with those for the same month a year ago. The column at the extreme right of the chart indicates the relative importance of the regions: the figures are percentages of national retail trade from the 1935 Census of Business.

THE INDEXES for the regions are charted, with U. S., from 1927, on pages 34-37. They are composites based on: bank debits (Federal Reserve Board), department store sales (Federal Reserve Board), new car registrations (R. L. Polk & Company), and life insurance sales (Life Insurance Sales Research Bureau). In regions 2, 3, 4, 5, and 14, wholesale sales (Department of Commerce), and in region 2, advertising linage (*Editor and Publisher*), which were found to make those indexes more accurate, are included. In region 15, department store sales have been omitted. Each index is separately adjusted for seasonal variation and for the number of business days in each month. All are comparable. The monthly average for the five years 1928-1932 equals 100. The preliminary figure for the United States is computed one month before regional figures are available.

THE PARAGRAPHS printed opposite the 29 regional charts quote figures for September based on samples of department and retail stores reporting to the Federal Reserve banks; for October and for the first half of November based on opinions and comments of business men in various lines of trade, gathered and weighed by the local DUN & BRADSTREET offices.

## REGIONAL TRADE BAROMETERS

REGION	Sept. 1939 Regional Index	Sept. 1939 Compared with Sept. 1938 (%)				Retail 1935 Sales %	
		- 10	0	+ 10	+ 20		+ 30
U. S.	86.8					+10.7	100.0
1. NEW ENGLAND	80.1					+17.8	7.8
2. NEW YORK CITY	77.1					+10.1	10.3
3. ALBANY AND SYRACUSE	91.8					+16.6	2.6
4. BUFFALO AND ROCHESTER	79.1					+13.6	1.9
5. NORTHERN NEW JERSEY	81.3					+12.0	2.9
6. PHILADELPHIA	81.8					+13.8	6.2
7. PITTSBURGH	85.1					+15.6	3.7
8. CLEVELAND	93.4					+15.5	2.9
9. CINCINNATI AND COLUMBUS	99.6					+ 9.8	3.1
10. INDIANAPOLIS AND LOUISVILLE	100.2					+11.2	2.6
11. CHICAGO	84.8					+11.6	6.4
12. DETROIT	97.2					+18.8	4.0
13. MILWAUKEE	90.6					+ 6.5	2.2
14. MINNEAPOLIS AND ST. PAUL	98.0					+13.3	4.5
15. IOWA AND NEBRASKA	82.3					+12.9	3.0
16. ST. LOUIS	85.4					+ 9.9	2.5
17. KANSAS CITY	86.3					+ 3.9	3.6
18. MARYLAND AND VIRGINIA	107.0					+10.7	3.8
19. NORTH AND SOUTH CAROLINA	103.1					+ 9.1	2.1
20. ATLANTA AND BIRMINGHAM	115.3					+12.9	3.5
21. FLORIDA	126.7					+21.4	1.3
22. MEMPHIS	100.9					+16.4	1.5
23. NEW ORLEANS	101.9					+ 9.1	1.0
24. TEXAS	106.7					+ 3.6	4.5
25. DENVER	106.8					+ 9.3	1.3
26. SALT LAKE CITY	95.0					+15.9	.8
27. PORTLAND AND SEATTLE	87.8					+12.0	2.7
28. SAN FRANCISCO	85.9					+14.2	3.4
29. LOS ANGELES	81.4					+ 2.0	3.9





## THE REGIONAL TRADE BAROMETERS

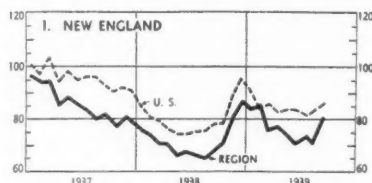
These indexes of consumer purchasing are corrected for seasonal variation; the monthly average for the five years 1928-1932 equals 100 (see preceding page). Charts showing the curves since January, 1928, were published in the September,

1939, number and will appear semi-annually. Additional information about the indexes and about their especial usefulness in regional sales quota work, back figures, and data about regional boundaries are available for users of the indexes.

### 1. NEW ENGLAND

SEPT., 80.1 AUG., 70.8 SEPT. 1938, 68.0

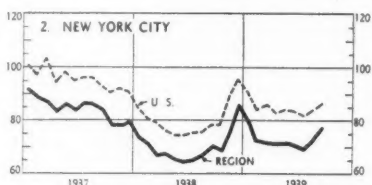
SEPTEMBER—Percentage department store sales increases over previous September: Boston 8, Providence 52 (hurricane last year), New Haven 11. OCTOBER—Percentage retail trade increases over previous October: Bangor-Portland-New Bedford-Worcester-Hartford 10, Boston-Providence 7, Springfield 5, New Haven 15. Portland-Boston-Springfield wholesale trade up 10% from a year ago. Payrolls and production above both previous month and previous year. Textile plants running full time. Munitions manufacturers active in New Haven and Hartford. Increased volume noted in tools, hardware, and heavy machinery lines. Collections improved. NOVEMBER—Mill production near capacity. Heavy goods industries active.



### 2. NEW YORK CITY

SEPT., 77.1 AUG., 72.3 SEPT. 1938, 70.0

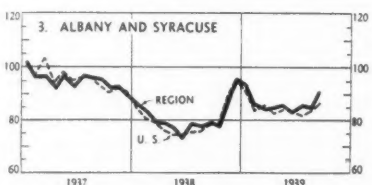
SEPTEMBER—Percentage department store sales increases over previous September: New York City and Brooklyn 6; Bridgeport 20, Westchester-Stamford 12. OCTOBER—Percentage retail trade increases over previous October: Bridgeport 15, New York City department store sales 3, parcel deliveries 2, hotel sales 18. Employment up 3% from September, payrolls up 5%; all industrial groups except some food branches showed notable gains. Bank clearings off 17% from a year ago in New York City, up 2% in Westchester County. Collections steady in comparison with last year. NOVEMBER—Election Day promotions resulted in sales up to 50% above last year; retail results generally 6 to 9% above 1938. Wholesaling active.



### 3. ALBANY AND SYRACUSE

SEPT., 91.8 AUG., 84.1 SEPT. 1938, 78.7

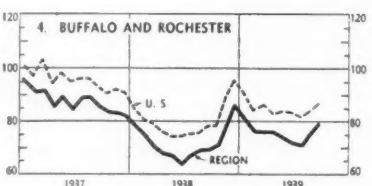
SEPTEMBER—Percentage department store sales increases over previous September: Syracuse 10, Northern State 8, Central State 12. OCTOBER—Percentage retail trade increases over previous October: Albany 10, Binghamton 8, Utica-Syracuse 12. Wholesale trade increases: Albany 10, Syracuse 27. Apple crop good in quantity and quality; farm prices low to fair. Payrolls and production generally above last year. Textile manufacturing active; volume of orders somewhat below September. Metal industry shows substantial gain over 1938. Binghamton shoe production slightly below last year. Collections steady. NOVEMBER—Little change in volume of wholesale and retail trade. Manufacturing steady to above October.



### 4. BUFFALO AND ROCHESTER

SEPT., 79.1 AUG., 75.0 SEPT. 1938, 69.6

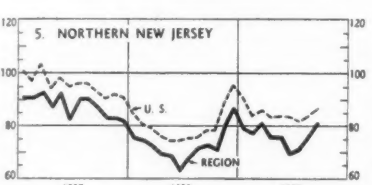
SEPTEMBER—Percentage department store sales increases over previous September: Buffalo 4, Rochester 5, Niagara Falls 9. OCTOBER—Percentage retail trade increases over previous October: Buffalo 10, Jamestown 30, Elmira 13, Rochester 5. Buffalo wholesale trade up 12% from a year ago. Payrolls and production above last year's level. Metal and machinery industries report increased activity. Buffalo steel rate at 88% of capacity, compared with 49% last October. Large seasonal losses in employment and payrolls at Rochester canning and clothing plants. Collections steady to improved. NOVEMBER—Retail sales 5% above 1938. Buffalo steel output at all-time peak of 95.5 per cent of capacity, 20% above 1929 level.



### 5. NORTHERN NEW JERSEY

SEPT., 81.3 AUG., 75.4 SEPT. 1938, 72.6

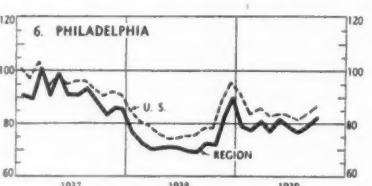
SEPTEMBER—Northern New Jersey department store sales 3% above corresponding month last year. OCTOBER—Newark retail volume up 4% from a year ago, up 12% from September. Wholesale trade volume up 10% from a year ago; sales dropped 8% below September, when fear of shortages caused abnormal activity. Payrolls and production above 1938, steady to above September. Building activity very favorable. Paterson airplane factory expanding plant. Drought conditions caused water shortage in North Jersey; South Jersey conditions were reported fair. NOVEMBER—Newark department store sales 8% above last year. Wholesale volume increased somewhat over October. Industry reaching seasonal peak.



### 6. PHILADELPHIA

SEPT., 81.8 AUG., 78.0 SEPT. 1938, 71.9\*

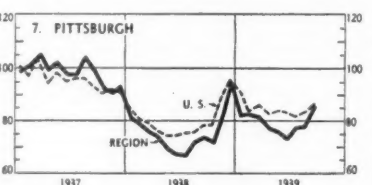
SEPTEMBER—Percentage department store sales changes from previous September: Trenton +24, Scranton +6, Philadelphia +9, Harrisburg -1, Wilmington +12. OCTOBER—Percentage retail trade increases over previous October: Trenton 4, Allentown-Reading 15, Philadelphia 11, Scranton-Williamsport 2, Wilkes-Barre 3, Harrisburg 5, York 6, Wilmington 9. Philadelphia wholesale trade up 8% from last year. Potato and grain crops short; fruit of small size. Payrolls and production above previous year and previous month. Steel plants operating close to capacity. Upswing in airplane, leather, chemical, rubber, and textile lines. NOVEMBER—Industry at new highs. Continued gains in trade.



### 7. PITTSBURGH

SEPT., 85.1 AUG., 77.1 SEPT. 1938, 73.6

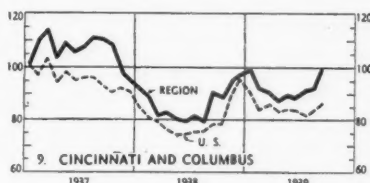
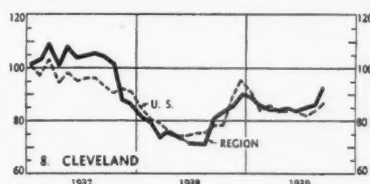
SEPTEMBER—Percentage department store sales increases over previous September: Erie 12, Pittsburgh 10, Wheeling 7, West Virginia State 7. OCTOBER—Percentage retail trade increases over previous October: Erie-Pittsburgh 12, Youngstown-Charleston 5, Huntington 10. Wholesale trade increases: (Continued directly opposite)



Eric-Pittsburgh 15, Charleston 10. Payrolls and production well above a year ago. Glass and chemical manufacturing improved. Coal mining activity increased. Steel operations mounted to 93% of capacity, double last year's level. Collections vary in comparison with last year. NOVEMBER—Larger industrial payrolls reflected in increased retail volume. Further increase in steel output.

## 8. CLEVELAND

SEPT., 93.4 AUG., 86.0 SEPT. 1938, 80.9  
 SEPTEMBER—Percentage department store sales increases over previous September: Cleveland-Toledo 7, Akron 17. OCTOBER—Percentage retail trade increases over previous October: Cleveland 17, Akron 22, Canton 25, Lima 20, Toledo 10. Wholesale trade increases: Cleveland 13, Akron 12, Toledo 10. Steel output at practical capacity. Paint and rubber production advancing. Automotive and aircraft output up to 40% ahead of last year. Toledo automotive lines slow; decline in employment attributed to Detroit strikes. Payrolls and production generally up from 1938. Collections improved. NOVEMBER—Sales of new and used cars strong compared with a year ago. Steel output held at 90% capacity.

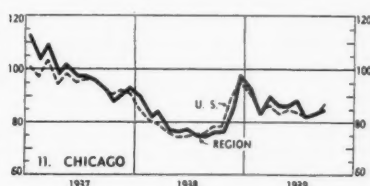
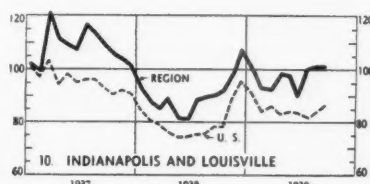


## 9. CINCINNATI AND COLUMBUS

SEPT., 99.6 AUG., 92.2 SEPT. 1938, 90.7  
 SEPTEMBER—Percentage department store sales increases over previous September: Cincinnati 5, Columbus 4. OCTOBER—Percentage retail trade increases over previous October: Cincinnati 15, Dayton-Springfield 20, Columbus 8, Zanesville 10. Cincinnati-Columbus wholesale trade up 12% from a year ago. Bumper corn crop about to be marketed; prices 40% higher than last year. Payrolls and production above last year's level. Steel plant working full time. Pottery manufacturing active. Employment increased in food manufacturing, machine, printing and publishing, and furniture lines. Collections steady to improved. NOVEMBER—Department store sales 15 to 25% above 1938; cooler weather aided Winter stock movement.

## 10. INDIANAPOLIS AND LOUISVILLE

SEPT., 100.2 AUG., 100.2 SEPT. 1938, 90.1  
 SEPTEMBER—Percentage department store sales increases over previous September: Louisville 6, Indianapolis 5, Fort Wayne 12. OCTOBER—Percentage retail trade increases over previous October: Louisville 8, Evansville 5, Indianapolis 10, Terre Haute 0, Fort Wayne 15. Wholesale trade increases: Louisville 15, Indianapolis 17. Tobacco crop large and in good condition. Payrolls and production well above 1938. Manufacturing of wood products, veneer, etc., ahead of a year ago. Agricultural machinery and electrical equipment output picking up steadily. Collections steady to improved. NOVEMBER—Retail sales up about 10% from last year. Wholesale volume steady to 15% above 1938.

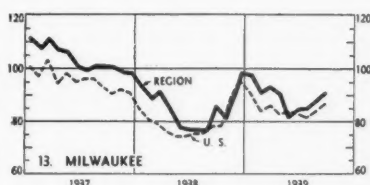
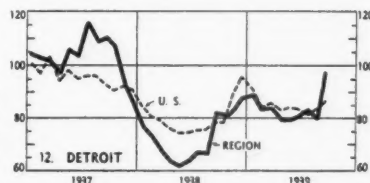


## 11. CHICAGO

SEPT., 84.8 AUG., 83.5 SEPT. 1938, 76.0  
 SEPTEMBER—Percentage department store sales increases over previous September: Chicago 3, Peoria 9. OCTOBER—Percentage retail trade increases over previous October: Chicago-Peoria 8, Rockford 15, South Bend 14. Chicago wholesale trade up 7% from a year ago. Corn crop large; hog and corn prices rather low. Payrolls and production above previous month and previous year. South Bend automobile and aviation plants running at full capacity. Steel output increasing steadily. Machine tool plants and foundries active. Rockford furniture manufacturing rather dull. Collections improved. NOVEMBER—Steel rate at new high of 91.2% capacity by middle of month. Retail sales 10% above 1938.

## 12. DETROIT

SEPT., 97.2 AUG., 79.8 SEPT. 1938, 81.8  
 SEPTEMBER—Detroit department store sales 1.4% above previous September. OCTOBER—Percentage retail trade increases over previous October: Detroit 8, Grand Rapids 14, Saginaw 5. Wholesale trade increases: Detroit 20, Grand Rapids 12. Apple and potato crops of excellent quality; prices higher than 1938. Payrolls and production up in comparison with both previous year and previous month. Factory employment reduced by about 55,000 due to automobile strikes; production not seriously affected as yet. Encouraging number of buyers registered at Grand Rapids furniture sale. Collections fair to good. NOVEMBER—Automobile production increased in plants not affected by shutdowns. Retail trade somewhat slower.

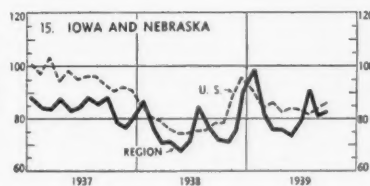
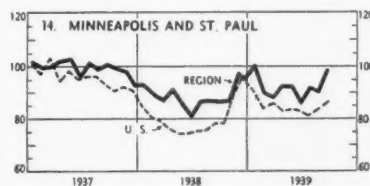


## 13. MILWAUKEE

SEPT., 90.6 AUG., 87.9 SEPT. 1938, 85.1  
 SEPTEMBER—Milwaukee department store sales 9% above last year's comparative. OCTOBER—Percentage retail trade increases over previous October: Milwaukee 8, Madison 10, Green Bay 9. Milwaukee wholesale trade up 5% from last year's level. Dry season caused reduction in amount of dairy products; high storage prices equalized income. Payrolls and production steady with previous month, up in comparison with 1938. Metal trades showing increased activity. Building operations at higher level than last month. Plumbing supplies manufacturing at ten-year high. Collections fair to good. NOVEMBER—Department store sales about 11% higher than in the corresponding period a year ago. Industrial activity showing little change from October level.

## 14. MINNEAPOLIS AND ST. PAUL

SEPT., 98.0 AUG., 90.7 SEPT. 1938, 86.5  
 SEPTEMBER—Minneapolis-St. Paul-Duluth-Superior department store sales 9% above corresponding month of 1938. OCTOBER—Percentage retail trade changes from previous October: Duluth-La Crosse-Fargo-Great Falls +5, Minneapolis +8, St. Paul +15, Sioux Falls -10, Billings -3, Butte 0. Wholesale trade increases: Duluth 13, Minneapolis 10, Great Falls 5. Payrolls and production steady to above last year. Sugar beet and hay crops good. Flour and feed sales steady; prices firm. Demand for linseed oil fair to good. Orders for heavy outer-wear larger than last year. Four mines reopened; Great Falls lead and silver mines 25% more active than last year. NOVEMBER—Retail trade improved somewhat. Building active.

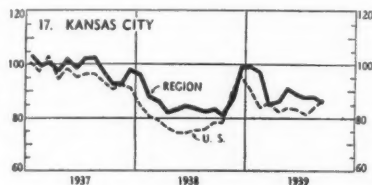
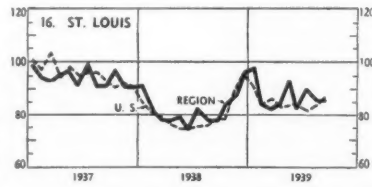


## 15. IOWA AND NEBRASKA

SEPT., 82.3 AUG., 80.2 SEPT. 1938, 72.0  
 SEPTEMBER—Omaha department store sales even with previous September. OCTOBER—Percentage retail trade increases over previous October: Burlington-Waterloo 10, Cedar Rapids-Dubuque-Des Moines-Lincoln 5, Davenport 15, Sioux City 7. Omaha sales 6% below a year ago. Wholesale trade increases: Sioux City 7, Des Moines 5, Omaha 8. Some difficulty in marketing bumper corn crop. Dry weather prevented germination of Winter wheat. Payrolls and production generally above last year. Flour milling 25% above 1938. Meat packing steady. Foodstuffs lines somewhat slow. NOVEMBER—Retail sales 5 to 10% above corresponding period of last year. Coat and suit departments showing greatest demand.

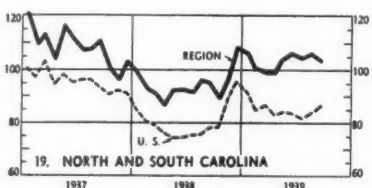
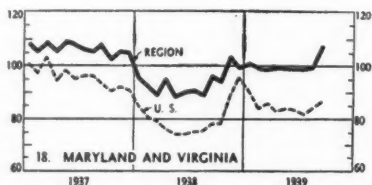
## 16. ST. LOUIS

SEPT., 85.4 AUG., 85.3 SEPT. 1938, 77.7  
 SEPTEMBER—Percentage department store sales increases over previous September: St. Louis 4, Springfield (Mo.) 7, Quincy 11. OCTOBER—Percentage retail trade changes from previous October: St. Louis—Springfield (Mo.) +5, Springfield (Ill.) +10, Quincy -3. St. Louis wholesale trade up 13% from a year ago. Corn and soy bean crops excellent. Winter wheat hurt somewhat by drought. Payrolls and production steady to above last year. Railroad shops running almost at capacity. Backlogs of orders in textile and general merchandise lines. Steel output at 77% of capacity by middle of month, compared with 45% last year. Collections fair to good. NOVEMBER—Factory production stepped up. Retail sales above 1938.



## 17. KANSAS CITY

SEPT., 86.3 AUG., 87.3 SEPT. 1938, 83.1  
 SEPTEMBER—Percentage department store sales changes from previous September: Kansas City +1, Wichita 0, Oklahoma City -1, Tulsa -2. OCTOBER—Percentage retail trade changes from previous October: Kansas City—Topeka—Wichita 0, St. Joseph +3, Oklahoma City -7, Tulsa -5. Wholesale trade changes: Kansas City +10, Oklahoma City -4. Farm prospects poor because of drought conditions. Cattle prices up. Large amount of corn stored by Government. Payrolls and production steady with last year. Airplane plants continued expansion. Oil production increased following September shutdowns; still below 1938. NOVEMBER—Rains relieved drought, but too late to benefit wheat. Retail trade slightly better.



## 18. MARYLAND AND VIRGINIA

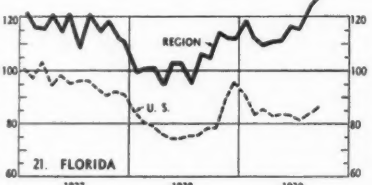
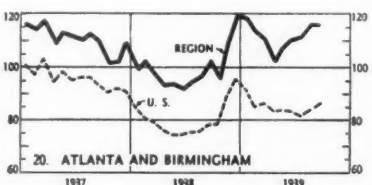
SEPT., 107.0 AUG., 99.5 SEPT. 1938, 96.7  
 SEPTEMBER—Percentage department store sales increases over previous September: Baltimore 6, Washington—Virginia State 8, Richmond 7. OCTOBER—Percentage retail trade changes from previous October: Baltimore +6, Washington +4, Norfolk +10, Richmond +5, Lynchburg +3, Roanoke -4, Bristol +8. Wholesale trade increases: Baltimore 5, Norfolk 15, Richmond 12. Tobacco markets opened late; large volume of sales, but prices rather low. Payrolls and production generally above last year. Paper manufacturers unable to meet orders. Textile mills showing increased activity. Coal production above normal. NOVEMBER—Retail and wholesale trade above last year's levels. Clothing manufacturing active.

## 19. NORTH AND SOUTH CAROLINA

SEPT., 103.1 AUG., 105.6 SEPT. 1938, 94.5  
 SEPTEMBER—Percentage department store sales increases over previous September: North Carolina 8, South Carolina 15. OCTOBER—Percentage retail trade increases over previous October: Asheville—Wilmington 0, Winston-Salem 18, Charlotte—Charleston 6, Columbia 16, Greenville 20; Raleigh trade off 5%. Wholesale trade increases: Wilmington 2, Charleston 5, Winston-Salem 25. Tobacco and cotton yields good. Payrolls and production steady to above last year. Columbia textile strike ended. Mills operating at capacity. Furniture manufacturing levelling off prior to Fall showings. Collections vary. NOVEMBER—Textile mills enlarging units; 300 looms to be added at Central Falls.

## 20. ATLANTA AND BIRMINGHAM

SEPT., 115.3 AUG., 115.7 SEPT. 1938, 102.1  
 SEPTEMBER—Percentage department store sales increases over previous September: Atlanta—Birmingham 9, Montgomery 6, Nashville 4. OCTOBER—Percentage retail trade increases over previous October: Atlanta—Augusta—Columbus—Mobile 10, Macon 15, Savannah—Birmingham 25, Montgomery—Nashville 5, Chattanooga 1, Knoxville 0. Wholesale trade increases: Atlanta 15, Birmingham—Nashville 10. Tobacco crop good; prices only fair. Large pecan crop. Payrolls and production ahead of last year. Textile mills running full time. Lumber and building materials lines active. Steel output at 94% of capacity. Collections fair to good. NOVEMBER—Department store sales slightly below last year. Birmingham steel active.

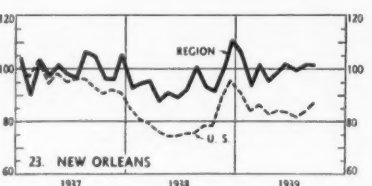
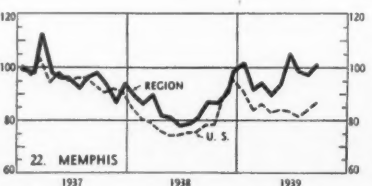


## 21. FLORIDA

SEPT., 126.7 AUG., 123.7 SEPT. 1938, 104.4  
 SEPTEMBER—Department store sales 15% above corresponding period of last year. OCTOBER—Percentage retail trade changes from previous October: Jacksonville +2, Miami +10, Tampa -10. Wholesale trade increases: Jacksonville 14, Tampa 12. Citrus and vegetable shipments still light, delayed somewhat by heavy rains. Tourist travel conditions considered very favorable. Production and payrolls steady to above last year. Heavy demand by railroads and industrials for heavy timbers. Naval stores demand steady; prices firm. Jacksonville cigar sales active. Collections fair in comparison with last year. NOVEMBER—Bookings on rail and air lines indicate earlier and heavier tourist traffic than usual.

## 22. MEMPHIS

SEPT., 100.9 AUG., 97.1 SEPT. 1938, 86.7  
 SEPTEMBER—Percentage department store sales increases over previous September: Memphis 8, Fort Smith 3, Little Rock 6. OCTOBER—Percentage retail trade increases over previous October: Memphis 10, Fort Smith 2, Little Rock 17. Memphis wholesale trade up 10% from a year ago. Fall crops hurt by drought. Most cotton picked, corn cut. Production and payrolls steady to above last year. Manufacturing of work clothing, furniture, and lumber particularly active; furniture orders booked to capacity through January. Collections fair to good. NOVEMBER—Retail volume slightly above last year's level. Employment improved. Less than normal damage to quality of cotton harvest.



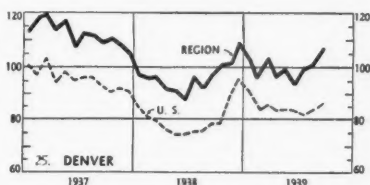
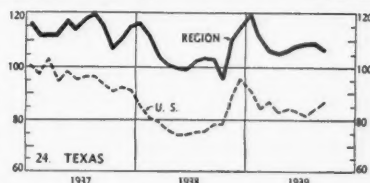
## 23. NEW ORLEANS

SEPT., 101.9 AUG., 102.0 SEPT. 1938, 93.4  
 SEPTEMBER—Department store sales 14% above previous September level. OCTOBER—Percentage retail trade changes: New Orleans +6, Jackson +7, Meridian -10. New Orleans wholesale trade slightly above last year's level. Rice and cotton crops matured. Sugar houses working at capacity to handle cane crop before frosts. Production and payrolls vary in comparison with last year. Factory closed at Meridian. New oil wells showing outstanding activity; cotton ginning, sugar grinding, and rice milling also show improvement. Coastwise shipping continues in usual volume; total cargo movement reduced by war. NOVEMBER—Cotton exports far ahead of last year. Crop about 95% gathered.



## 24. TEXAS

SEPT., 106.7 AUG., 109.1 SEPT. 1938, 103.0  
 SEPTEMBER—Percentage department store sales changes from previous September: Dallas -2, Fort Worth -1, Houston -4, San Antonio +1. OCTOBER—Percentage retail trade changes from previous October: Dallas +1, Fort Worth -1, Amarillo +10, Lubbock +12, Wichita Falls +10, El Paso-Waco 0, Houston +2, Galveston-Beaumont-Shreveport +5, Austin -3, San Antonio +3. Wholesale trade changes: Dallas-Houston +5, San Antonio +14, Fort Worth +5, Shreveport -10. Drought hurt farming and ranching. Cotton and corn harvested early. Feed crop short. Payrolls and production generally above last year. Oil production steady; lumbering improved. NOVEMBER—Oil allowables increased in order to enable producers to meet foreign contracts.

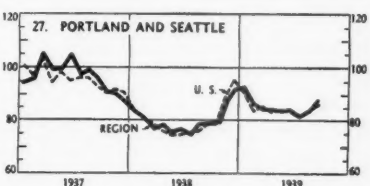
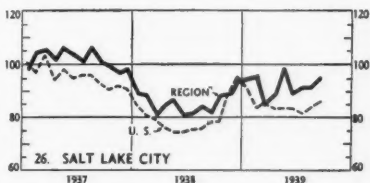


## 25. DENVER

SEPT., 106.8 AUG., 100.1 SEPT. 1938, 97.7  
 SEPTEMBER—Denver department store sales 12% above previous September level. OCTOBER—Percentage retail trade changes from previous October: Denver 0, Albuquerque +5. Denver wholesale trade up 4% from a year ago. Crop yield fair; prices improved somewhat. Payrolls and production steady with a year ago in Denver, up in Albuquerque. Little month-to-month change noted in activity of leading industries. Season's first major snowstorm at end of month brought badly needed moisture to winter wheat crops in the Continental Divide. Collections fair to slow in Denver, good in Albuquerque. NOVEMBER—Cold weather increased retail activity. Industry steady. Wholesale trade improved in seasonal lines.

## 26. SALT LAKE CITY

SEPT., 95.0 AUG., 91.5 SEPT. 1938, 82.0  
 SEPTEMBER—Salt Lake City department store sales 8% above level of previous September. OCTOBER—Salt Lake City retail trade up 15% from last October; wholesale trade likewise increased 15%. Sugar beet crop in good condition; prices fair. Good increase shown in grocery store sales. Wholesale plumbing companies particularly active. Payrolls and production up compared with a year ago; employment and sales also improved. Sugar beet processing in full swing. Coal production continues active with tonnage about 20% ahead of last year. Manufacturers' sales of knit goods and wool blankets 15% above a year ago. Collections good. NOVEMBER—Retail furniture sales slower. Wholesale building specialty volume holding up well.

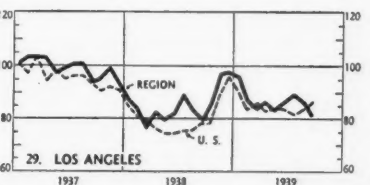
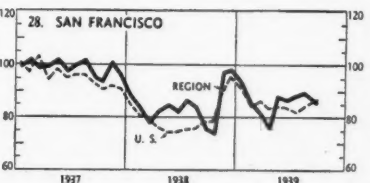


## 27. PORTLAND AND SEATTLE

SEPT., 87.8 AUG., 84.6 SEPT. 1938, 78.4  
 SEPTEMBER—Percentage department store sales increases over previous September: Seattle 17, Tacoma 22, Spokane 16, Portland 13. OCTOBER—Percentage retail trade increases over previous October: Seattle 12, Tacoma 10, Spokane 3, Portland 5. Wholesale trade increases: Seattle 8, Portland 17. Apple crop about 11% below 1938 bumper crop. Wheat crop also smaller. Production and payrolls above last year. Lumber, interior finish, and door manufacturing increased; plywood concerns doing best business. Salmon operations steadily active. Good increase in Portland construction activity during month. Collections vary. NOVEMBER—Wholesale and retail sales about 10% above similar period of 1938.

## 28. SAN FRANCISCO

SEPT., 85.9 AUG., 88.8 SEPT. 1938, 75.2  
 SEPTEMBER—Percentage department store sales increases over previous September: San Francisco 63, Oakland 6; strike conditions prevailed in San Francisco department stores in 1938. OCTOBER—Percentage retail trade changes from previous October: San Francisco +40, Oakland +10, Sacramento 0, Fresno -10. San Francisco wholesale trade 15% above a year ago. Crop yields generally good, small in Sacramento Valley due to lack of sufficient rain. Payrolls and production vary in comparison with last year. Paper, electrical goods, and lumber industries showing good volume. Home building somewhat slow. Railroad shop payrolls up slightly. NOVEMBER—Store trade active. Marine strikes hampering shipping.



## 29. LOS ANGELES

SEPT., 81.4 AUG., 86.0 SEPT. 1938, 79.8  
 SEPTEMBER—Percentage department store sales changes from previous September: Los Angeles -5, Phoenix +11. OCTOBER—Los Angeles retail trade 6% below previous October; San Diego trade even with last year; Phoenix trade up a little. Los Angeles wholesale trade 8% ahead of 1938. Bean crop slightly smaller than last year; grape production also less. Slight shortage of pickers in Arizona cotton district. Payrolls and production generally above last year. Aircraft, petroleum, steel, and shipbuilding industries showing largest gains. Motion pictures and building about even with 1938. NOVEMBER—Unfilled orders at airplane factories total \$142,000,000. Trade below 1938 levels.

UNLOADING APPLES FROM MISSISSIPPI STEAMBOAT—CHARLES PHELPS CUSHING



## INDUSTRIAL AND COMMERCIAL FAILURES

	NUMBER OF FAILURES			CURRENT LIABILITIES <i>Thousands of dollars</i>			TOTAL LIABILITIES <i>Thousands of dollars</i>			DUN'S INSOLVENCY INDEX †					
	1939	1938	1937	1939	1938	1937	1939	1938	1937	UNADJUSTED			ADJUSTED ‡		
Jan. . . .	1,263	1,377	841	19,122	21,415	12,003	23,192	27,162	14,992	69.3	76.2	47.7	56.3	62.0	38.8
Feb. . . .	963	1,149	755	12,788	21,028	14,004	12,795	25,501	22,887	62.5	75.2	50.6	54.3	65.4	44.0
Mar. . . .	1,057	1,167	861	17,851	40,325	22,591	18,164	80,373	78,878	58.1	64.8	47.1	57.5	64.2	47.1
Apr. . . .	1,064	1,172	818	17,435	21,147	12,893	20,693	29,355	13,628	58.5	65.1	48.3	56.8	63.2	47.4
May . . . .	1,028	1,123	875	14,664	19,139	13,088	19,501	19,831	14,965	54.3	59.8	47.6	53.8	59.2	47.6
June . . . .	847	1,073	703	11,460	15,918	12,829	11,616	16,892	16,737	50.3	64.1	41.1	52.4	67.5	43.3
July . . . .	885	1,038	651	14,128	14,761	12,780	22,763	15,008	13,955	48.3	57.2	37.9	54.3	64.3	42.1
Aug. . . .	859	1,015	736	11,259	16,382	14,950	11,714	17,252	19,473	46.8	53.8	39.7	55.1	63.3	46.7
Sept. . . .	758	866	584	9,402	14,341	9,818	10,586	15,183	11,308	42.9	51.6	35.2	51.1	61.4	41.9
Oct. . . .	916	997	815	16,140	13,219	14,079	16,795	16,960	15,381	49.7	54.7	45.2	54.0	59.4	49.1
Nov. . . .	884	842	736	12,302	16,400	14,950	17,281	17,709	17,709	53.9	52.7	45.2	51.8	51.2	49.1
Dec. . . .	875	1,009	736	36,528	27,818	14,950	54,736	36,963	36,963	56.7	58.0	45.2	56.1	58.0	49.1
Total . . . .	12,836	9,490	736	246,505	183,253	149,500	335,534	276,876	276,876	61.1	45.9	45.2	56.1	58.0	49.1

† Apparent annual failures per 10,000 enterprises. ‡ For seasonal variation.

## ANALYZING *the* RECORD of INDUSTRIAL and COMMERCIAL FAILURES

OCTOBER FAILURES FOLLOW END-OF-YEAR UPWARD TREND

**D**URING the month of October 916 industrial and commercial failures were reported. This was an increase of 158 over the 758 in September, but a decrease of 81 from the 997 in October, 1938. Current liabilities rose from \$9,402,000 in September to \$16,140,000, in part because of an increase in the number of large failures. A year ago liabilities amounted to \$13,219,000.

An October rise in failures is a seasonal occurrence and interest lies mainly in the extent of the rise. Was it normal, less-than-normal, or excessive? For an answer to these questions one must turn to the insolvency index. The index corrects for the varying number of working days in the months and relates failures to the number of concerns in business. The index, reflecting the October increase, moved upward from 42.9 in September to 49.7. This was a 16 per cent increase compared to a normal rise of about 10 per cent. This more-than-normal rise was in turn reflected in the adjusted index by a rise

from 51.1 to 54.0. In July the adjusted index was 54.3 and in August 55.1. The return of the October adjusted index to the approximate levels of July and August indicates that the relation of October failures to those of the earlier months was about normal, and that the October rise seemed excessive only because it followed a low September.

Failures during October were up 31 per cent in manufacturing, 30 per cent in wholesale trade, and 21 per cent in retail trade; construction failures showed little change; and commercial service failures dropped sharply. Manufacturing increases were reported in 7 of the 12 main divisions, all of them of substantial amount, particularly foods up 25 per cent, textiles up 50 per cent, paper and printing up 60 per cent, and other numerically less important lines correspondingly up. Increases in wholesale trade were well scattered. Food products, the largest group, were up 25 per cent. Several large failures in both manufacturing and wholesaling greatly increased lia-

bilities over the September amounts. Five divisions of retail trade—foods, general stores, hardware, automotive products, and restaurants—showed substantial increases. Apparel shop failures declined slightly.

The general level of failures continued below that of a year ago. However, only in retail trade and commercial service were failures fewer in number than October, 1938. For the first time this year manufacturing failures topped those in the corresponding month of last year. This occurred largely because a year ago manufacturing failures showed a decrease from September instead of an increase. In most of the individual manufacturing lines failures were about on a par with those of last October, registering fewer in only one line, transportation, and more in only two lines, food and textiles, although even these increases were but slight. An increase in manufacturing liabilities was particularly noticeable in forest and machinery products. Also, in many of the retail lines failures

were about equal in number with October of last year, although the present level of retail failures as a whole was off 11 per cent—this being due to a drop in apparel shop and furniture store failures.

INDUSTRY GROUP	October 1939	October 1938	Per Cent Change
Manufacturing . . . .	175	172	+ 2
Wholesale Trade . . .	109	108	+ 1
Retail Trade . . . . .	557	627	- 11
Construction . . . . .	46	43	+ 7
Commercial Service . .	29	47	- 38
Total . . . . .	916	997	- 8

One of the striking features of the October record was an increase in larger failures—those with liabilities in excess of \$25,000. While the small and very small failures increased about 17 per cent, failures with liabilities between \$25,000 and \$100,000 rose from 57 to 86, or nearly 50 per cent, and failures with liabilities in excess of \$100,000 rose from 13 to 24.

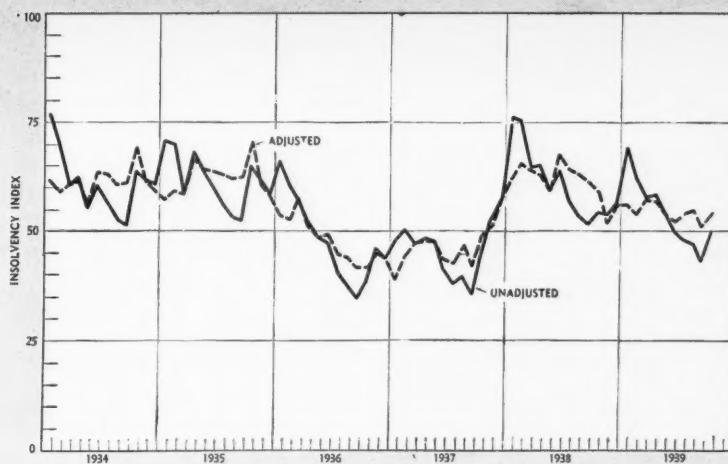
Failures with liabilities between \$25,000 and \$100,000 had reached in September the lowest point since 1937, but with the rise to 86 equalled in number those of a year ago. Only twice before in 1939 were very large failures so numerous, in the peak month of January and again in April, when there were 25 in both months. All of the increase in these two size groups was in manufacturing and wholesale trade. The legal action taken in the 24 very large failures during the month was as follows:

Voluntary bankruptcy . . . . .	2
Involuntary bankruptcy . . . . .	6
Reorganization . . . . .	10
Arrangement . . . . .	2
Receivership . . . . .	2
Assignment . . . . .	1
Composition . . . . .	1

Among the 12 large manufacturing concerns which failed were to be found three liquor companies, two furniture concerns, two clothiers, and among the seven failing wholesalers three liquor distributors.

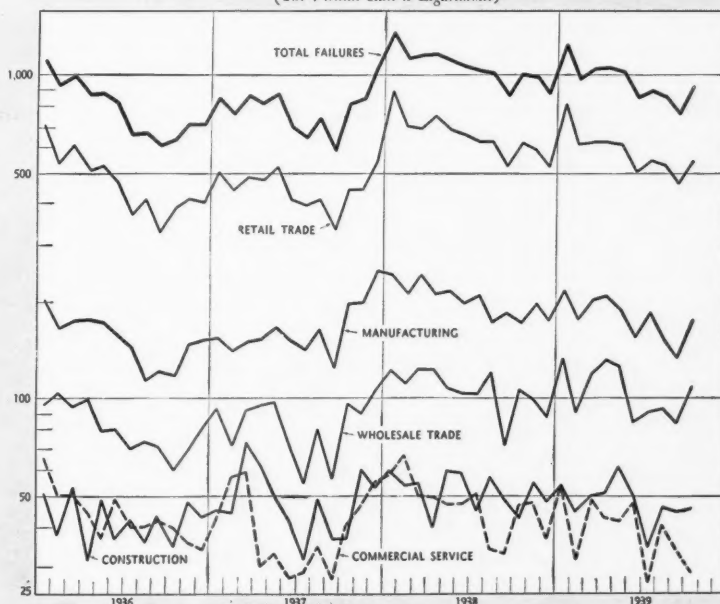
Compared with a year ago, small and very small failures were currently fewer in number, failures with liabilities between \$25,000 and \$100,000 equal in number in the two years, and large

## MONTHLY TREND OF THE INSOLVENCY INDEX



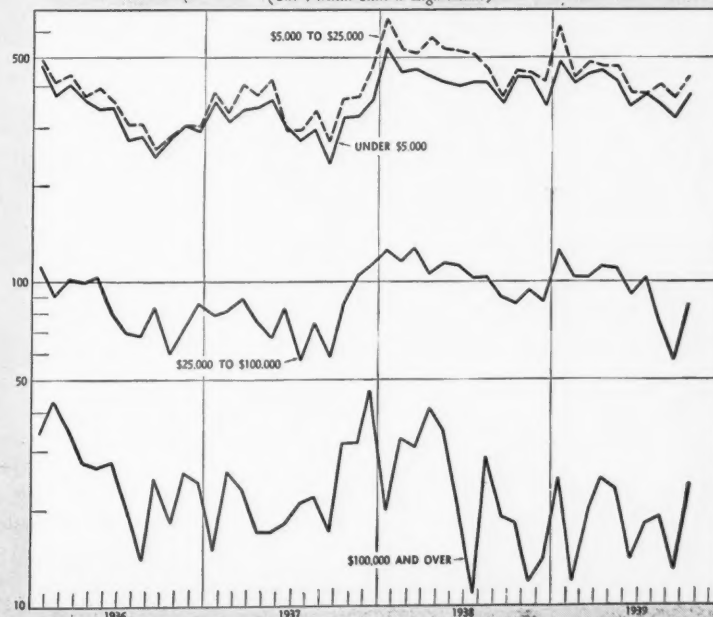
## FAILURES BY INDUSTRIAL GROUPS

(The Vertical Scale is Logarithmic)



## FAILURES BY SIZE OF LIABILITIES

(The Vertical Scale is Logarithmic)





failures at the present time a third again as many as last year.

SIZE OF LIABILITIES	October 1939	October 1938	Per Cent Change
Under \$5,000 .....	374	438	-15
\$5,000-\$25,000 .....	432	455	-5
\$25,000-\$100,000 .....	86	86	0
\$100,000-\$1,000,000 .....	24	18	+33
\$1,000,000 and over .....	..	..	..
Total .....	916	997	-8

Geographically, failures were up in all Federal Reserve Districts in October, with the exception of three, Philadelphia in the East, and Kansas City and Minneapolis in the Middle West. The sharpest increases were in the Richmond, Atlanta, Cleveland, and St. Louis districts. Even in the three districts in which total failures were less than in September the number of manufacturing failures increased, showing how extensive was the rise in the manufacturing lines. With total failures below those of last October, failures in the New England and South Atlantic States were in excess of those a year ago.

The proportion of city failures to total failures is usually lowest in August and September, rising in the Fall months when the total number of failures is rising. In October just passed failures were up at a slightly higher rate in the large cities than in the rest of the country, thus bringing about the rising proportion in city failures. New York City failures rose more sharply than total city failures.

FEDERAL RESERVE DISTRICT	Jan.-Oct. 1939	Jan.-Oct. 1938	Per Cent Change
Cleveland .....	624	843	-26
St. Louis .....	327	437	-25
Boston .....	779	1,029	-24
Richmond .....	456	540	-16
San Francisco .....	1,060	1,251	-15
Philadelphia .....	606	698	-13
New York .....	2,788	3,095	-10
Chicago .....	1,498	1,652	-9
Atlanta .....	554	578	-4
Minneapolis .....	187	193	-3
Kansas City .....	481	458	+5
Dallas .....	280	203	+38
Total .....	9,640	10,977	-12

#### Canadian Failures

Canadian failures, numbering 154 in October with liabilities of \$1,370,000, were 17 per cent higher than those in

### FAILURES BY DIVISIONS OF INDUSTRY—OCTOBER, 1939 AND 1938

(Current liabilities in thousands of dollars)

	Number			Current Liabilities		
	Oct. 1939	Sept. 1939	Oct. 1938	Oct. 1939	Sept. 1939	Oct. 1938
TOTAL UNITED STATES .....	916	758	997	16,140	9,402	13,219
MANUFACTURING (total) .....	175	133	172	6,659	3,175	4,110
Foods .....	40	32	38	1,472	569	1,031
Textiles .....	33	22	30	506	342	341
Forest Products .....	14	14	14	1,397	415	478
Paper, Printing and Publishing .....	16	10	16	421	59	604
Chemicals and Drugs .....	11	7	10	121	124	245
Fuels .....	3	4	4	111	816	316
Leather and Leather Products .....	6	3	5	292	28	54
Stone, Clay, Glass, and Products .....	7	6	7	170	98	305
Iron and Steel .....	8	2	8	262	18	81
Machinery .....	11	8	12	1,455	192	206
Transportation Equipment .....	2	4	7	126	95	106
All Other .....	24	21	21	326	419	343
WHOLESALE TRADE (total) .....	109	84	108	3,121	1,102	2,676
Farm Products, Foods, Groceries .....	40	32	41	1,590	390	640
Clothing and Furnishings .....	5	7	4	55	125	95
Dry Goods and Textiles .....	3	3	2	22	12	45
Lumber, Building Materials, Hardware .....	10	8	7	240	135	227
Chemicals and Drugs .....	3	3	3	59	17	92
Fuels .....	..	2	1	..	19	115
Automotive Products .....	4	5	9	39	70	75
Supply Houses .....	6	4	12	300	54	207
All Other .....	38	20	29	816	280	1,180
RETAIL TRADE (total) .....	557	462	627	4,526	3,700	5,251
Foods .....	165	134	169	922	702	885
Farm Supplies, General Stores .....	29	15	27	170	71	265
General Merchandise .....	24	22	23	323	161	167
Apparel .....	84	96	119	512	605	984
Furniture, Household Furnishings .....	30	32	46	260	213	930
Lumber, Building Materials, Hardware .....	42	34	34	389	636	249
Automotive Products .....	51	32	50	449	478	321
Restaurants .....	62	35	69	687	275	493
Drugs .....	39	32	41	505	292	417
All Other .....	31	30	49	309	267	540
CONSTRUCTION (total) .....	46	45	43	1,095	927	607
General Contractors .....	11	9	6	512	662	93
Carpenters and Builders .....	12	7	16	247	31	268
Building Sub-contractors .....	22	29	21	186	234	246
Other Contractors .....	1	..	..	150	..	..
COMMERCIAL SERVICE (total) .....	29	34	47	739	498	575
Cleaners and Dyers, Tailors .....	7	9	6	89	147	94
Haulage, Buses, Taxis, etc. ....	8	9	15	168	164	165
Hotels .....	2	5	6	99	94	123
Laundries .....	3	3	4	39	36	51
Undertakers .....	1	..	5	9	..	34
All Other .....	8	8	11	335	57	108

September and 67 per cent above those of a year ago. Liabilities, reaching \$1,000,000 for the first time since March, were considerably higher than in the earlier periods. The increase in failures over September was principally in

New Brunswick, Ontario, and Manitoba, while Quebec joined those Provinces in reporting more failures than a year ago.

Note: In DUN'S STATISTICAL REVIEW there are published more detailed failure statistics by States, large cities, industrial divisions, and size of liabilities.

# SIGNIFICANT BUSINESS INDICATORS

COMPILED BY THE STATISTICAL STAFF OF "DUN'S REVIEW"

More detailed figures appear in "DUN'S STATISTICAL REVIEW"

## Building Permit Values—215 Cities

Geographical Groups:	October 1939	October 1938	Change P. Ct.	September 1939	Change P. Ct.
New England.....	\$5,399,362	\$6,659,096	- 18.9	\$5,175,138	+ 4.3
Middle Atlantic.....	31,172,402	29,910,215	+ 4.2	27,699,178	+ 12.5
South Atlantic.....	16,888,468	9,476,882	+ 78.2	10,864,065	+ 55.5
East Central.....	22,866,107	18,939,433	+ 20.7	24,755,895	- 7.6
South Central.....	18,803,196	9,488,325	+ 98.2	12,732,796	+ 47.7
West Central.....	5,825,291	4,573,015	+ 27.4	6,369,637	- 8.5
Mountain.....	2,179,471	2,043,857	+ 6.6	2,090,714	+ 4.2
Pacific.....	14,743,862	16,021,096	- 8.0	13,516,243	+ 9.1
Total U. S.....	\$117,878,159	\$97,111,919	+ 21.4	\$103,203,666	+ 14.2
New York City.....	\$20,510,045	\$20,089,367	+ 2.1	\$18,684,042	+ 9.8
Outside N. Y. C.....	\$97,368,114	\$77,022,552	+ 26.4	\$84,519,624	+ 15.2

## Bank Clearings—22 U. S. Cities

(Millions of dollars)

	Monthly			Daily Average		
	1939	1938	1937	1939	1938	1937
January.....	23,187	21,798	27,226	927.5	871.9	1,089.0
February.....	19,711	17,584	23,720	896.0	799.2	1,078.1
March.....	24,995	22,822	29,412	925.7	845.3	1,089.3
April.....	21,798	21,667	26,086	871.9	833.4	1,003.3
May.....	22,188	20,169	23,951	853.4	806.8	958.0
June.....	23,022	23,959	25,903	885.5	921.5	996.3
July.....	21,386	21,624	26,015	855.4	865.0	1,000.6
August.....	22,591	19,716	22,260	836.7	730.2	856.2
September.....	23,820	21,733	24,076	952.8	869.3	963.0
October.....	22,244	24,011	24,668	889.8	960.4	986.7
November.....	.....	21,637	21,796	.....	940.7	947.6
December.....	.....	27,697	25,805	.....	1,065.3	992.5
Total.....	264,417	300,918	.....	875.8	.....	996.7

## Bank Clearings for Individual Cities (000 omitted)

	October 1939	October 1938	Change P. Ct.	September 1939
Boston.....	\$1,012,796	\$960,610	+ 5.4	\$979,581
Philadelphia.....	1,704,000	1,591,000	+ 7.1	1,650,000
Buffalo.....	156,298	137,216	+ 13.9	138,640
Pittsburgh.....	554,805	472,676	+ 17.4	536,876
Cleveland.....	466,445	407,938	+ 14.3	431,397
Cincinnati.....	269,858	235,309	+ 14.7	260,171
Baltimore.....	337,148	299,999	+ 12.3	309,076
Richmond.....	201,191	213,452	- 5.7	190,546
Atlanta.....	290,300	256,700	+ 13.1	246,400
New Orleans.....	199,415	187,493	+ 6.4	182,423
Chicago.....	1,350,564	1,319,640	+ 2.3	1,360,924
Detroit.....	458,071	394,305	+ 16.2	426,614
St. Louis.....	410,542	375,893	+ 9.2	380,833
Louisville.....	155,946	144,378	+ 8.0	172,615
Minneapolis.....	322,449	295,892	+ 9.0	340,889
Kansas City.....	437,514	375,622	+ 16.5	420,594
Omaha.....	142,453	130,789	+ 8.9	141,411
Dallas.....	262,318	237,110	+ 10.6	258,044
San Francisco.....	660,393	602,572	+ 9.6	659,358
Portland, Ore.....	151,228	131,850	+ 14.7	146,868
Seattle.....	173,219	152,890	+ 13.3	176,826
Total 21 Cities.....	\$9,716,953	\$8,923,334	+ 8.9	\$9,410,086
New York.....	\$12,526,801	\$15,087,528	- 17.0	\$14,410,128
Total 22 Cities.....	\$22,243,754	\$24,010,862	- 7.4	\$23,820,214

## Dun & Bradstreet Weekly Food Price Index

The index represents the sum total of the wholesale price per pound of 31 commodities in general use.

Weeks:	1939	1938	1937	1936
Nov. 28.....	\$2.35	\$2.41	\$2.69	\$2.90
Nov. 21.....	2.39	2.38	2.68	2.87
Nov. 14.....	2.42	2.39	2.73	2.83
Nov. 7.....	2.43	2.40	2.76	2.79
Oct. 31.....	2.43	2.38	2.76	2.78
Oct. 24.....	2.44	2.38	2.74	2.77
Oct. 17.....	2.43	2.39	2.80	2.75
Oct. 10.....	2.39	2.42	2.82	2.76

HIGH

LOW

1939..	\$2.46	Sept. 19	\$2.13	Aug. 15
1938..	\$2.53	Jan. 4	\$2.34	May 10
1937..	\$3.01	Mar. 16	\$2.56	Dec. 28

## Dun & Bradstreet Daily Weighted Price Index 30 Basic Commodities

(1930-1932 = 100)

	1939			
	Nov.	Oct.	Sept.	Aug.
1.....	118.13	+	106.14	102.81
2.....	117.91	118.60	*	102.90
3.....	118.16	118.22	+	102.56
4.....	118.42	118.41	*	102.44
5.....	+	118.03	111.64	*
6.....	118.47	118.87	116.07	+
7.....	*	118.13	115.62	102.42
8.....	118.37	+	115.26	102.11
9.....	118.13	117.64	114.93	102.45
10.....	118.62	117.82	+	102.22
11.....	*	118.36	115.50	102.31
12.....	+	*	115.83	*
13.....	118.21	118.40	116.30	+
14.....	118.49	118.37	116.81	102.29
15.....	118.03	+	117.51	102.24
16.....	118.07	118.70	117.24	102.14
17.....	117.56	119.11	+	102.37
18.....	117.89	119.66	116.63	102.55
19.....	+	119.38	116.16	*
20.....	118.24	118.94	116.95	+
21.....	118.14	119.07	117.64	102.91
22.....	118.18	+	118.66	102.97
23.....	*	118.76	118.66	103.20
24.....	117.99	118.56	+	103.94
25.....	117.80	119.02	118.27	103.61
26.....	+	118.46	118.33	*
27.....	117.62	118.53	118.95	+
28.....	117.65	118.28	118.36	103.27
29.....	117.98	+	117.91	103.12
30.....	118.64	118.34	119.34	103.32
31.....	118.36	.....	.....	103.37

† Sunday. \* Markets closed.

HIGH

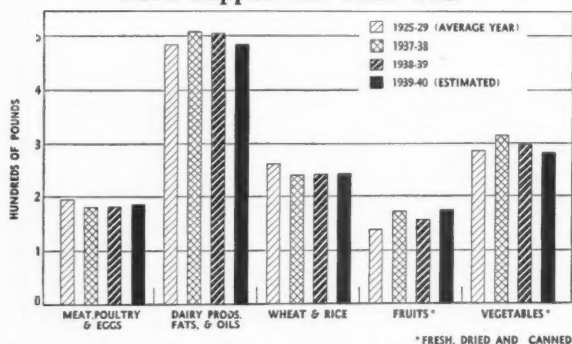
LOW

1939..	119.66	Oct. 18	101.40	July 24
1938..	117.06	Jan. 10	102.43	June 2
1937..	158.26	Apr. 5	114.83	Dec. 30

# THROUGH THE STATISTICIAN'S EYES

ODD AND INTERESTING ITEMS FROM THE MONTH'S RECORD

## Food Supplies for Next Year



FOOD SUPPLIES IN THE UNITED STATES—Selected Years—U. S. Bureau of Agricultural Economics—Supplies of most foods for the year beginning July 1, 1939, are expected to be equal to or somewhat above average; in cases where supplies will be below last year, no shortage is anticipated.

HOUSEWIVES were told during the first days of the European war that there was plenty of food, and estimates of supplies for next year, made by the U. S. Bureau of Agricultural Economics, confirm the statement. As a matter of fact, the supplies of most foods for 1939-1940 are estimated to be equal to or larger than supplies during the last three years. Meats, poultry, and eggs in particular are expected to be more abundant than last year, and so are supplies of edible fats and oils, wheat, fruits, and sweet potatoes.

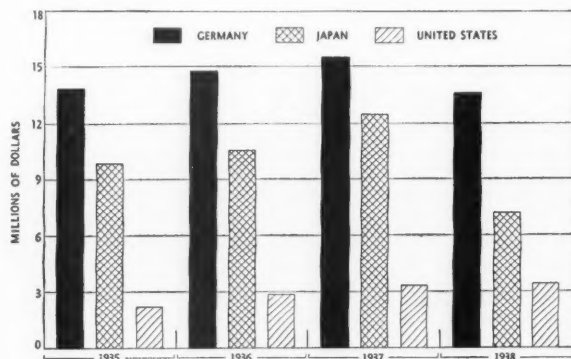
In comparison with the base period 1925-1929, supplies of lard and other domestic edible fats (except butter), wheat, rice, sweet potatoes, fruits, vegetables, milk, and manufactured dairy products (except butter), are expected to be considerably above average this year, says the Bureau. Somewhat below average, but above at least two of the last three years, will be production of meats, poultry, eggs, and butter. Potato and dried bean estimates are low in comparison with all these periods, but even in these cases nothing approaching a shortage is expected.

## World Trade in Toys

FACTS about toys are of particular seasonal interest around Christmas time, and some particularly interesting facts about the international toy trade have been gathered by the U. S. Bureau of Foreign and Domestic Commerce. It seems that the United States is the largest single producer of toys, but that in the export market, this country has long been overshadowed by Germany and Japan. One reason for German and Japanese predominance is that their cheap toys compete more than successfully with ours on the matter of price, while the principal demand for American toys is for the "quality" products.

Canada and the United Kingdom have long been our best export markets, and in late years Australian and South African purchases have increased considerably. Similarly, about a third of total German toy exports, whose value amounted to approximately 35,000,000 reichsmarks in 1937, have gone to Great Britain alone, and other important German markets in recent years have included Canada, the United States, Argentina, and other Latin-American countries.

Before the World War, Germany's place as the chief exporter of toys was undisputed. During the war, however, many of her markets were taken over in whole or in part by Japan. A foreword to the study points out that, since both Germany and Japan are now at war, the time is propitious to consider possibilities of expansion in our own toy exports.

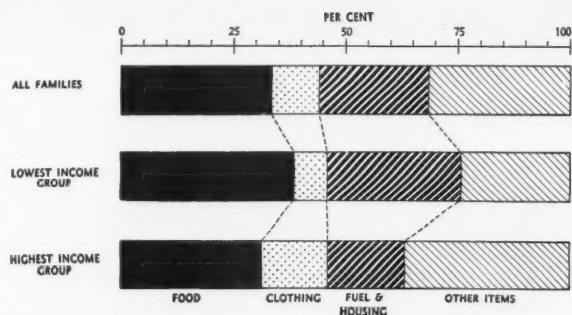


EXPORTS OF TOYS—1935-1938—U. S. Bureau of Foreign and Domestic Commerce—Figures derived from the Bureau's reports indicate that Germany leads the world in the manufacture of toys for export, and that Japan takes second place; exports of the United States, the largest single producer and consumer, have increased somewhat in late years.

## Annual Family Expenditures

BUDGETEERS will be interested in knowing how the average American (that creature of myth) proportions the expenditure of his average income, which amounts to something like \$1,513 a year per family of 3.6 persons, according to the U. S. Bureau of Labor Statistics. The largest share, \$508 or 33.5 per cent, is spent for food, while another 10.6 per cent goes for clothing. A good part of the \$44 allotted per person for clothing is spent for shoes, while Winter coats are bought on the average of only once in five years for men and once in four years for women. Housing, fuel, light, refrigeration, and other household operation consume another \$416 of the city worker's income. Of the "other items" listed, transportation expenses amount to \$126 per family, or 8.3 per cent of the total income.



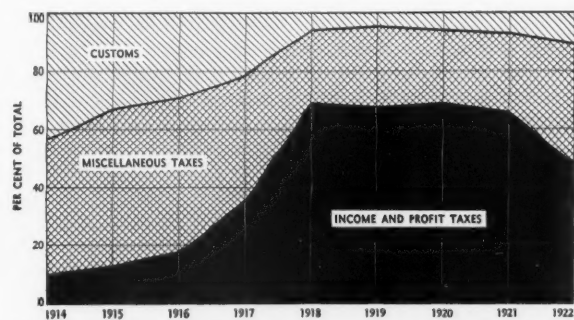


ANNUAL FAMILY EXPENDITURES IN 42 CITIES—1934-1936—U. S. Bureau of Labor Statistics—Considerable variation from the average occurs in the proportion of total expenditures allocated by different income groups to the three essentials of food, clothing, and housing.

There is, of course, considerable variation from this average in the distribution of disbursements by income levels. A family with below-average means naturally tends to put a greater proportion into the essentials of food, clothing, and housing than does a family with above-average income. In the income group of \$500-to-\$600 per year, \$260 or almost 40 per cent is spent for food, \$51 or 7.5 per cent for clothing, and \$137 or 17.1 per cent for housing. In this group, in fact, total expenditures amount to an average of \$677, more than total income. The average family in the \$3,000-and-over group spends a much larger sum, \$1,013, for food, \$468 for clothing, and \$406 for housing, but the proportion of total disbursements for each item is 31.5, 14.6, and 12.6 per cent, respectively.

### Federal Tax Structure: 1913 vs. 1939

UP TO 1910, excepting the Civil War period, customs receipts were the principal source of revenue for our Federal Government. By 1913, the only internal revenue taxes of any importance were liquor and tobacco taxes and the corporation excise. By 1938, the Federal tax structure had been changed almost beyond recognition, and the income tax had become the most fruitful source of revenue, the Conference Board points out.

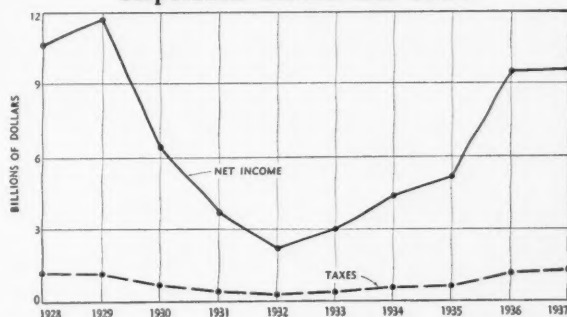


FEDERAL TAX COLLECTIONS—Fiscal years 1914-1922—National Industrial Conference Board—During the World War years customs receipts became a much smaller part of total Federal revenues than previously, while income and profits taxes became a much more important proportion.

The first income tax law was passed in 1913, but its yield of \$71,000,000 for the fiscal year 1914 was almost offset by a decrease in customs receipts due to the outbreak of war in that year. During the World War years, however, tax rates were raised, exemptions lowered, and new sources of revenue added to the system. Income taxes became a dominant element in the Federal tax structure from the time of the passage of the Revenue Act of 1918. In 1919, 1920, and 1921, the three years in which total collections were the largest, income and profits taxes accounted for more than two-thirds of the Federal revenues.

Even under wartime conditions, however, the Federal tax system never produced more revenue than it did in the fiscal year 1938. During that year, collections from income and profits taxes at \$2,586,000,000 were larger than for any fiscal year since 1921, old-age security taxes were collected for the first time, receipts from tobacco taxes reached a new peak, and liquor and manufacturers' excise taxes remained at a high level.

### Corporation Income and Taxes



CORPORATE NET INCOME AND TAXES—1928-1937—U. S. Treasury Department—The net income of corporations was the highest in 1937 of any year since 1929, while corporation taxes, including income and excess profits taxes, were slightly higher in the year 1937 than in 1929.

CORPORATIONS are well aware of the fact that the Federal Government has placed great reliance on income taxes as a very important source of revenue (see "Federal Tax Structure," above). A summary of tax returns filed with the U. S. Treasury Department during 1938 covering the year 1937 reveals that total corporation taxes for the latter year amounted to \$1,276,183,511, of which \$1,056,940,380 was derived from the normal tax, \$175,897,696 from the surtax on undistributed profits (now extinct), and \$43,345,435 from the excess-profits tax. In 1936, income taxes amounted to \$1,169,765,000 and excess profits levies to \$21,613,000.

The gross income of 477,839 active corporations during 1937 was \$141,967,201,000; 192,029 corporations reported net incomes aggregating \$9,634,849,000, while 285,810 reported no net income. Gross income for that year was the highest since 1929, when the figure for 456,021 active corporations was \$160,621,509,000.

# HERE AND THERE IN BUSINESS

WHAT'S NEW AS OBSERVED BY THE AGENCY'S REPORTERS

**Suggestions**—In celebrating its sixty-first anniversary, General Electric Company, in its employee magazine, reviewed the achievements of its personnel. For one thing, it summarized their contributions of valuable ideas.

Since 1919, when a suggestion system was organized, GE employees have made 300,000 suggestions. About 75,000, 25 per cent, have been adopted, and a total of \$1,000,000 paid for them. Averaged over the twenty-year period, those 75,000 mean that more than ten ideas were accepted every day from 1919 to 1939.

Awards for employee suggestions are based both on value and ingenuity. In one case a youth six months out of college collected \$1,200 for proposing the use of plastic strips between the inner and outer linings of refrigerators.

**Strypeeze**—Specially produced for removing bakelite and synthetic resin types of finishes, a new semi-paste remover is being announced by The Savogran Company, Boston, Mass. It is also useful for removing paint, varnish, shellac, enamel, and lacquer. The product is called Strypeeze.

When it is brushed on, the remover is protected by a wax-free, anti-evaporant film which forms on its surface. This is intended to keep the paint solvents imprisoned against the finish. Because of the film, a coat of Strypeeze may remove all surface finish right down to the bare wood, plaster, or metal. A gallon strips approximately 200 square feet of surface. The remover does not contain benzol, caustic, alkali, or acid. It does not take flame easily.

**Stethoscope**—In September Electrical Research Products, Inc., New York, announced an Industrial Noise Analyzer, or tin ear, for detecting the hiccup in wobbly machines and rejecting them. (DUN'S REVIEW, October, 1939.) Like so many products, the tin ear is a remedy, which means it can only go to work when some manufacturer is convinced he needs it.

Having a remedy, however, isn't enough for ERPI engineers. They



FIRST AWARD—To Lewis H. Brown, President of the Johns-Manville Corporation, was given the first Vermilye Medal, "in recognition of outstanding contribution in the field of industrial management." The award was set up recently by William M. Vermilye, Vice-President, National City Bank of New York. It was made by The Franklin Institute, Philadelphia, Pa.

have also developed a diagnosis. This is known as the Recording Frequency Analyzer, or the industrial stethoscope. Basically, it consists of a microphone which picks up motor noises to be recorded on graph paper.

The new machine is portable. During a diagnosis, it sweeps all the way up the keyboard of sounds, from the lowest frequency to the highest, graphing them all with pointed emphasis on those indicating trouble. Study of the graph indicates whether a permanent "tin ear" would be helpful.

**Latex**—Liquid rubber travels a long distance to reach the United States. It's a temperamental material, subject to rapid bacterial decomposition. To preserve it, ammonia gas is used. Now, however, a chemist doing research on Santobrite, a product of the Monsanto Chemical Company, St. Louis, Mo., has discovered that this disinfectant is also a good preservative for latex if used with a small amount of ammonia. Santobrite, a form of sodium pentachlorophenate, comes in a powder or briquette, making transportation easy.

**Express**—Railway Express Agency recently shipped several pythons, including one great, crushing 30-foot fellow, from Seattle, Wash., to various

destinations where people evidently felt they had to have pythons. Probably in anticipation of a moment when some customer strolls into an express office towing one, the company has printed the trade price on pythons in its magazine, *The Express Messenger*. A python, this informs agents, is valued at about \$50 per linear foot—although how accurately one measures the beast seems subject to the individual expressman's conscience.

**Vacation Plan**—Next Summer workers paid by the hour at the Caterpillar Tractor Company plant, Peoria, Ill., will receive 4 per cent of their annual income as vacation payments. Caterpillar has between 8,500 and 9,500 of its 11,000 employees on an hourly payroll basis.

A small booklet called "Vacation Plan" describes the new procedure. It begins by saying that vacations with pay are actually an increase in wages. That is, a person is paid for time he doesn't work. A two-weeks' vacation with pay represents a 4 per cent increase in income.

In the future, Caterpillar expects to shut down its plant for two weeks each Summer. Except for a few necessary service and maintenance people, everyone will take a vacation. Just before

this time, the company will pay each employee on the hourly payroll 4 per cent of his annual earnings after deduction of Social Security and Unemployment Insurance taxes.

An hourly payroll worker who leaves the company's employment before the vacation period will receive a separation payment, figured on his annual earnings to that date by the same method.

**Showmanship**—Having exhibited before more than a million visitors, Previews of Progress, the General Motors show recently at the New York Fair, is on the road again, touring the Middle and South Atlantic States this Winter. The show is a demonstration of what large scale industrial science and research are doing for men.

**Low Bridge**—A stooping towboat which ducks under bridges instead of waiting till they open has been constructed by the Manitowoc Shipbuilding Company, Manitowoc, Wis. It has a movable pilot house mounted on an hydraulic lift, similar to those used in raising automobiles for greasing. The lift was manufactured by the Rotary Lift Company, Memphis, Tenn.

Running between Chicago and St. Louis, the towboat, a pusher type, operates with pilot house lifted up high to spy out the land ahead. On approaching bridges, the boat pulls itself together by sliding the pilot house down low enough to pass underneath.

**National Inventory**—On January 2 12,000 enumerators will begin a national inventory—the 1940 census. Business schedules will cover activities in the calendar year 1939. Companies that close their books January 31 will report for the fiscal year.

The Census of Business will ask:

What was the volume of business done in 1939? How much was done on credit (classified by installment and open account totals)? What was cost of stock on hand at the beginning and end of the year?

Other questions will cover size of accounts receivable at the beginning and end of 1939, number of employees and total payroll, length of ownership, age of establishment, and a detailed breakdown of sales by commodities.

# METALS

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● Extensive deposits of iron ore in the Gulf South await the blast furnace and steel plant, while demand for iron and steel products increases with the growing industrialization of this region.

In the Gulf South are abundant, dependable Natural Gas—temperate climate—intelligent, reliable, white labor—low taxes (ten years' remission in some states)—varied transport—readily available land—big markets!

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FOR TEXAS, Mail received at: Beaumont, Beeville, Dallas, Fort Worth, Houston, Longview, San Antonio and Wichita Falls. FOR LOUISIANA, Mail received at: Baton Rouge, Lake Charles, Monroe and Shreveport. FOR MISSISSIPPI, FLORIDA and ALABAMA, Mail received at: Jackson, Mississippi.

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An innovation this census will be a special schedule for sales finance companies as a survey of consumer debt.

The Census of Manufactures will place emphasis on the following: plant equipment, classification of employees, salaries and wages of employees engaged in manufacturing and distribution separately, value of 1939 construction work done, number and total rated horsepower capacity of prime-movers and generators.

Information will also be sought on manufacturers' inventories, cost of materials, fuel, purchased electricity and contract work, value of products, and value added by manufacture. Facts on primary movement of manufactures through channels of distribution will be entered on a supplementary Business Census form attached to the schedule for Census of Manufactures.

**Golden Pen**—A fountain pen with barrel and cap of 14-karat gold plate on plastic is being prepared to sell at retail for a dollar in a limited number of department stores. The pen, and its companion automatic pencil, are products of Salz Brothers, Inc., New York.

Salz Brothers have been silver-plating plastic pen barrels for about nine months, but the golden pen is a new development. Plating is done by making successive deposits of silver, nickel, gold, and rhodium.

**Information Sources**—Federal and State laws affecting all retailers are listed in a loose-leaf *Retailer's Manual of Taxes and Regulations*, published by the Institute of Distribution, Inc., 570 Seventh Avenue, New York. This is the third edition since 1935. Side indexed, it carries charts, tables, and maps on sales taxes, chain store taxation, and summaries of laws. Issued for members of the Institute, it is sold to non-members for \$10, with a six-month revision service.

A *Retailer's Reference Book of Federal Trade Commission Rulings* has been issued by the Merchandising Division of the National Retail Dry Goods Association, 101 West 31st Street, New York. Its 150 loose-leaf pages are confined to facts based on a case-by-case study of the Commission's rules and cease and desist orders. Copies cost \$5. Material is presented in merchandising classifications as, "Textiles,

non-textiles, accessories, and apparel; food, drugs, and cosmetics; home furnishings and house wares; small wares; miscellaneous."

**Bassett**—For one brief week just after Christmas *The Bassett Journal*, a small weekly newspaper in the foothills of Southwestern Virginia, will blow itself up to national stature. It issues an annual birthday edition (1939's will be the third) for the town's big business, Bassett Furniture Industries. Copies go to furniture dealers all over the country, turning the personal history of Bassett business and people into a sales argument for Bassett products.

There's a story in the town industries, the story of an old family of Virginians, land owners who were made poor by the Civil War. Through farming and trading its sons got on their feet. They built a furniture industry in the foothills. Mass production began in 1902, and management of six allied companies is by grandsons of the Southern gentleman-farmer of pre-Civil War days.

**Desk Lamp**—The Polaroid Corporation, Boston, Mass., has news of a new Polaroid desk lamp. It's a little thing designed by Walter Dorwin Teague, the man who planned the Ford exhibit at the New York World's Fair.

Polaroid credits a window of its patented, light-transmitting film with canceling glaring light rays and furnishing three times as much visibility without any apparent increase in intensity.

Mr. Teague designed the lamp to occupy the least possible space, form



POLAROID—A desk lamp by the man who designed the Ford World's Fair Exhibit.

of the base, stem, and shade being purely functional (lacking ornamental bumps).

**Gair's**—Redlands is a small California city having a population of 15,000 persons. Gair's, a men's apparel store there, gets so much mail because of its public relations work that the management can't answer all the letters. For instance, the store's 1938 Thanksgiving announcement in the local paper, which has a daily circulation of about 3,000, was quoted and reprinted extensively. It brought numerous comments, tops being a letter from ex-President Herbert Hoover.

A Christmas ad signed by fourteen employees, and a local ad promoting national brands were reprinted for national distribution by the publisher of *Esquire* and *Apparel Arts*. Just this September a slam-bang, highly controversial ad fighting the private brands of specific stores went out in re-



UNIFICATION—At the First National Bank and Trust Company, Madison, Wis., these new cabinets help to concentrate records in a single location, accessible to a single operator who communicates with all parts of the bank by phone. The method was developed by Wheel-dex Manufacturing Company, N. Y. Each cabinet carries over 36,000 cards. Two placed together form slightly more than a half-circle facing the operator.

print form to almost every orange grower in the State.

Gair's has one promotion piece which, after six years of use, still gets letters from pleased recipients. It appears on a slip of yellow paper, stapled to store checks and to the personal checks of employees. It begins: "I'm glad to pay you. . . Here's my check. I want you to know I have enjoyed doing business with you because you gave me honest value."



UNSPOTTED—No wives cry over spilt milk if it's on this Koroseal-surfaced cloth.

**No Spots**—A table cloth which is being sold this month in department stores of 25 large cities will not take spots from spilled foods or ink. The cloths are a product of the Sunlite Manufacturing Company, Milwaukee, Wis. At present cotton table coverings are available, but the future may see silk, rayon, and linen damask with a similar allergy to spots. Stains wipe off with a dampened rag.

Koroseal, a synthetic product of the B. F. Goodrich Company, Akron, Ohio, is responsible for the spot-resistant qualities.

**B.P.M.**—There's an opportunity for considerable civic ballyhoo in a new engineering term, b.p.m., which stands for "bumps per mile." A b.p.m. machine has been developed by the Dow Chemical Company, Midland, Mich., to measure and record the relative roughness of roads.

Called a Rufometer, the machine is installed in automobiles to chart bumps by drawing a ragged line on graph paper. Although Dow developed the gadget to prove that roads surfaced with Dowflakes are smoother than those which are untreated, it's not hard to visualize future tourist advertisements saying: "Take route six to the White Mountains, tests prove it's much less bumpy."

# GOOD BUSINESS NEWS

**Flexible Financing Plan  
Fits Big Or Little  
Business**

**Borrowing Power  
Measured By Sales**

**Loans Self Liquidating**

**I**f your business happened to be in a temporary tight spot for lack of working capital, who would have the deciding word as to how much you could borrow to tide you over—you, or the lender?

Most business financing smacks of dictatorship. It is tight-formed by tradition and precedent. It lays down terms and conditions which the borrower *must* accept. It measures his worth by what he *has*—not by his present or potential volume of profitable sales.

That's where "NON-NOTIFICATION" Open Account Financing shows a definite superiority. It is poles apart from other forms of financing in flexibility, in ease and speed of action, in conforming to the actual day-by-day needs of the business that employs it.

It fits easily into the plans and operations of any manufacturer or wholesaler—big or small—as these two actual cases\*, taken from our records, illustrate.

**Case #1**—Sales for the first four months of 1938, before using our Open Account Financing, were \$117,197. Net

loss, 14%. Sales for the first four months of 1939, using our service, were \$154,792 gross. Net profit was 7.1%. Outstandings increased to a figure permitting 60% greater borrowing capacity.

**Case #2**—Company started using our Open Account Financing in 1928. Annual sales volume was then \$1,301,778. For the year 1938, gross volume was \$5,608,067. Eight years volume, 1931 to 1938 inclusive, was \$31,761,974—all financed, without increase in capital, by anticipation of receivables.

\* \* \*

You can easily have a sample of how this kind of financing would ease your problems, without disturbing in any way your present customer relations or interfering with management. First, send for our pamphlet, "COMPARATIVE COSTS OF FINANCING". Then, if you're interested, let one of our officers meet with you and arrange a practical demonstration. No obligation.

*\*The facts and figures, taken from our records, can be certified.*

## COMMERCIAL CREDIT COMPANY

"Non-Notification" Open Account Financing

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CAPITAL AND SURPLUS MORE THAN \$65,000,000

# Resolved!



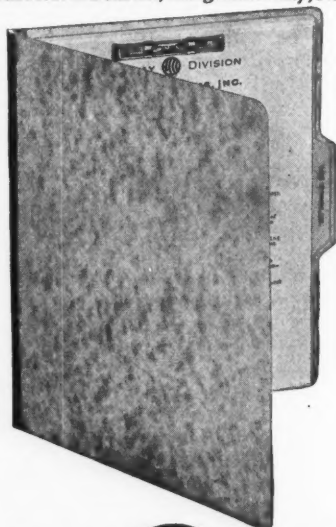
## No Filing Headaches In 'Forty'!

We're thoroughly fed up with losing valuable papers—and the resultant loss of executives' valuable time!

We're going to *bind* our records with ACCO FASTENERS. Using ACCO-BIND FOLDERS, all our papers will be bound safe from loss and the dangers of mis-filing.

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and FOLDERS

# THE BUSINESS BOOKSHELF

BUSINESS . . . FINANCE . . . ECONOMICS . . . GOVERNMENT

**I**N *Consumer Credit and Economic Stability* (Russell Sage Foundation, \$3), Rolf Nugent reports on his explorations in frontier territory. A correspondent of the *London Economist*, speaking of business conditions in the United States, observed only three years ago that the area of consumer credit was ". . . *terra incognita*, officially ignored, statistically non-existent."

Dr. Nugent's endeavor has been to estimate the amounts of consumer credit outstanding at the end of each year from 1923 to 1937, to trace the interaction of expansion and contraction in consumer indebtedness and national income, and to suggest possible ways to control the volume of consumer credit. His definition of consumer credit includes that extended by retail merchants (open account and installment sales), by service creditors (doctors, laundries), by intermediary financing agencies (installment sales of automobiles), and by cash-lending agencies.

Between the close of 1923 and the close of 1929, according to Dr. Nugent's estimates, consumer credit outstanding increased by almost \$4,000,000,000; from then until the Spring of 1933 declined by almost as much; and subsequently expanded until in the Fall of 1937, at \$8,500,000,000, it was above the 1929 peak. Then by January, 1938, it was again rapidly contracting, apparently by more than \$120,000,000 a month.

## Action and Reaction

Such consumer credit movements are to a large extent, he concedes, the result of changes in income. It is Dr. Nugent's thesis, however, that in turn consumer credit fluctuations have contributed substantially to the amplitude of cyclical variations and represent an increasingly powerful force toward economic instability. Increasingly, because the part played by consumers' durable goods in the total volume of

## CURRENT READING

BOOK	SUMMARY
GRAPHIC PRESENTATION, by Willard C. Brinton. Brinton Associates, 512 pages, \$5.	A handbook showing hundreds of examples of charts, maps, illustrations, and tables, reproduced from books, magazines, and the publications of associations and Government boards and bureaus. Many charts are in color.
REVENUE BONDS AND THE INVESTOR, by Laurence S. Knappen. Prentice-Hall, 329 pages, \$3.50.	Covers origin, development, legal aspects, marketing, defaults, types of revenue bonds, users, appraisal of their desirability, alternatives, advantages.
ELEVENTH BOSTON CONFERENCE ON DISTRIBUTION, 1939. Boston Chamber of Commerce, 114 pages, \$3.75.	Topics include "Practical Applications of Science and Invention to Distribution," "Costs and General Marketing Problems," and "Regulation of Business Practices."
CONSUMER CREDIT AND ECONOMIC STABILITY, by Rolf Nugent. Russell Sage Foundation, 420 pages, \$3.	Explores a statistically neglected field of credit, estimates amounts of consumer credit outstanding each year from 1923 to 1937 and traces their interaction with national income during times of expansion and contraction.
WOE UNTO YOU, LAWYERS! by Fred Rodell. Reynal & Hitchcock, 274 pages, \$2.50.	The author, a law professor, says, "If people could be made to realize how the vaunted majesty of The Law is a hoax, they would not long let lawyers lead them around by the nose." "Debunking" in humorous vein.
HUMAN-RELATIONS MANUAL FOR EXECUTIVES, by Carl Heyel. McGraw-Hill, 253 pages, \$2.	Hundreds of short, already-tested suggestions for better personnel relations. Essentially simple and universal, they may be applied in many types of business.
FINANCING ECONOMIC SECURITY IN THE UNITED STATES, by William Withers. Columbia University Press, 210 pages, \$2.75.	An outline of the history of relief finance since 1933 is followed by discussion of its economic effects. The author says another billion and a half can be raised by better taxes. A system for future relief is proposed.
WORLD ECONOMIC SURVEY, 1938-1939, League of Nations. Columbia University Press, 247 pages, \$1.50.	Record of the nations in 1938, economically, financially, productively; with sections on employment, population's ebb and flow, foreign trade, commercial policy, economic effects of war, rearmament, and land changes.



production has grown steadily during the past several decades and, with air-conditioning and television on the horizon, may reasonably be expected to expand further.

What to do, if anything? "The desirability of controlling consumer credit fluctuations in the interest of stability will scarcely be doubted." . . . "The most volatile segment of consumer credit is that which arises out of installment sales of consumers' durable goods. For these transactions the requirements of creditors with respect to down-payments and periods of amortization exert a powerful influence upon credit volume . . ." "Banks are the principal ultimate source of credit for financing purchases of automobiles, refrigerators, automatic furnaces, pianos, and washing machines. It should be possible, with very little modification of existing facilities for bank supervision, to limit the portfolios of banks to consumer credit paper which came within down-payment and amortization standards fixed by the Federal Reserve System."

AUTHOR and publisher of *Graphic Presentation* (Brinton Associates, \$5), Willard C. Brinton is a stout defender of the adage "a picture is worth a thousand words." Fittingly, his new five-hundred page book avoids unnecessary text, does relatively little *telling*, but much *showing*, with two or three examples to a page.

That is what *Graphic Presentation* is, a compendium of the best examples Mr. Brinton has been able to find in a quarter-century of study, collecting, and cataloging of all sorts of charts (organization, flow, sector, bar, curve, and chronology charts) and maps and tables—and combinations of them. They have been reproduced, many in color, from countless sources: from books, magazines, and the publications of associations and government boards and bureaus.

In the final fifth of *Graphic Presentation* are chapters too on printing and reproducing methods, use of cameras, color, selection of paper, posters, dioramas, cartoons, and the preparation of illustrations.

For those who work with charts and prepare and present them this should be a valuable handbook.



Prospects Remember This

## "MERRY CHRISTMAS"

### All Year 'Round!

Yes, this Autopoint pencil-and-knife set does a double job of winning friends and holding them. Both are gifts every man needs! And men will thank you *more* for Autopoints!—the Autopoint pencil with the Grip-Tite tip that holds even thin leads without wobbling, twisting, sliding or easy breaking; and Autopoint "one-hand-opening" knife. Many tested ways to use these gifts!—send for book of promotional ideas, "The Human Side Of Sales Strategy."

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Through service daily from St. Louis, Memphis and the Twin Cities



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This is one form of community protection provided by AMERICAN SURETY and NEW YORK CASUALTY COMPANIES. Many other types of casualty and surety coverage written by these Companies prevent loss to banks and business, and automobile and home owners throughout the country.

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A modern plan of finance affords the salient features of credit insurance without premium or waiting period. Advances cash on rated accounts without recourse. Total cost less than accepted collection rates. It's worth inquiring about. Won't you write us?

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## for the convenience of office people . . . . .

This Peterson 30 Utility Wardrobe ends the typical locker problem. A 4' x 1' rack which provides individually separated, fully ventilated accommodations for 12 persons—hats, coats, overshoes and umbrellas. Available in any length (accommodates 3 persons per foot). Rigid steel construction; balanced. Portable (with tired rollers) or stationary types. Detachable or permanently attached coat hangers. Finishes in keeping with appointments of the finest offices.



Write for catalog showing description and prices. Complete line of checkroom and wardrobe equipment.

**VOGEL-PETERSON CO., INC.**  
"The Checkroom People"  
1819 N. Webster Ave. Chicago, U.S.A.

## THE BUILDING INDUSTRY

(Continued from page 21)

Included in cost are delays in deliveries and lowered efficiency of labor. Still another explanation is the rise in interest rates because of destruction of capital and government competition in the capital market.

In addition, uncertainty over the war's outcome should not be underestimated. Uncertainty affects all those participating in the war; but is undoubtedly experienced also by neutral nations; for the latter are never free from anxiety as to whether they will be drawn in. Moreover, economic adjustment is realized to be inevitable when war is ended, regardless of outcome. Release from this uncertainty partly explains the rapid revival of building after war is over. The rapid revival of building explains in turn why liquidation of war industries often brings no immediate serious reaction on business and employment.

Does the pattern followed by building in previous wars, however, provide a clue to behavior of building in the present war? Has the great building inactivity in the last ten years developed such an urgent demand that war will be powerless to depress building? The answer to this would seem to depend upon the part which America plays in the conflict. So long as the United States remains at peace and keeps her trade with belligerents within bounds, the volume of building may continue the upward course of the last five years. If munitions trade remains on a cash-and-carry basis, trade with the belligerents is not likely to become great enough to disrupt our economy.

On the other hand, if the United States enters the war, opens her trade up to the allies on a credit basis, or engages upon a gigantic armament program of, say, five or ten billions a year, then even our great need of housing will not prevent a slump. For the things that are used in war are the things that are used in building: men, metals, cellulose, transportation, on the one hand; savings on the other. Since there are never enough of all these things to carry on a building program and a major war at the same time, the war will always receive priority.

But what would happen to the building industry after a war building famine had been added to a depression building famine? When peace had finally been declared, could we expect a violent upsurge of building? This, it would seem, would depend upon how exhausted the war had left us. Offhand, it seems unlikely that the next war would leave America any more exhausted than the first World War left England or Germany. Yet both of those countries shared with the rest of the world the remarkable resurgence of building activity that came with the peace and extended over the whole postwar decade. America's three greatest depressions have occurred after her great wars—not immediately, but ten or twenty years later. It is not impossible that the great task of rebuilding capital equipment after war so effectively occupies a nation's efforts that the great reaction is postponed for a decade or so—and perhaps made that much more severe.

## SYNTHETIC PLASTICS

(Continued from page 28)

this method wherever it has been practicable.

Injection molding is accomplished with entirely different equipment which more nearly approaches the technique of die casting. The molding compound is placed in a hopper from which it is fed automatically into a heating chamber, where it becomes liquid to about the consistency of molasses. A hydraulic plunger forces the viscous mass through a small orifice (called a gate or sprue) into the mold

which is constantly being cooled by circulating cold water. Molded parts are ejected automatically within a few moments after the material enters the mold.

Three years ago there were but a few injection presses operating in this country. Most of these were of very small capacity and made in Germany. Today there are about 800 American-made injection presses in operation, and the majority of them are running 24 hours a day with three shifts of operators.

**"Joe—this little book  
is a complete inventory  
of all I possess!"**



## Yours for Ten Days Trial!

Have you a record of what you made on that last real estate deal? Do you know the present cash value of your life insurance? Which of your bonds are registered? What is the dividend record of the stocks you own? How about your notes payable and your notes receivable? How about your records for Income Tax Reports?

Do not rely on memory or haphazard notes for the answers to these and other important financial questions. Let MI-REFERENCE keep all this information before you—all the time. This new book is simple and easy to keep up-to-date and you have all the facts of your affairs at your finger tips in twelve simple forms.

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provides a permanent, perpetual inventory of all assets and liabilities. Instant access to every reference need—no brain-racking figuring to determine your net worth. No knowledge of bookkeeping systems is necessary.

MI-REFERENCE is a handsome, handy three ringed loose-leaf book. Celluloid index tabs. Twelve different forms, page size  $5\frac{1}{2}$ " x  $8\frac{1}{2}$ ".

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Columbus, Ohio.

Attach this coupon to your letterhead and mail!

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....DeLuxe Edition Mi-Reference @ 8.50  
....DeLuxe Junior Edition Mi-Reference @ 6.50

Name .....

Address .....

City .....

Another press that looks as though it might upset a lot of existing plans and procedures if it ever gets into production has been developed by C. D. Shaw. It is more like an injection press than anything else, but through carefully regulated control of both heat and pressure, it is entirely capable of injection molding of phenolics and ureas.

No review of current trends in the plastic industry seems quite complete without some speculation about what may happen if war comes to this country. Any attempted evaluation of the dollar increase in plastics production prompted by war here or a prolonged war in Europe would be purely a guess. Prices of raw materials will naturally rise if demands on chemicals in other fields become sufficient to create a shortage of those types which flow into plastics manufacture. Likewise, demands on plastics to replace certain metals and other materials which have been withdrawn from their normal channels will probably be reflected in the increased cost of molded and laminated parts. Skilled labor and steel, too, will become scarce with a consequent slowing up in the production of molds, dies, and tools; and emergency measures may result.

Plastics during the last war were not sufficiently developed to permit drawing comparisons which apply today. They have replaced, in some instances, older materials in industrial uses and can be safely predicted to experience some startling advancements to meet the demands of war. This is indicated by extensive research now in progress to develop certain plastics for aircraft manufacture and shorten the construction period from weeks to days.

It would be better for industry if speculation about its rôle in the war were restrained and moderate, as speculation about all other phases of the industry should be too. Plastics do not successfully replace all other materials, nor will they ever do so. They exhibit many worthwhile physical properties that can be intelligently engineered into war-time or replacement service and if the opportunity is available, many plastics manufacturers may find export to Europe an inviting market. On the other hand, a sound, steady, and more permanent market, much more worthy of cultivation, lies right here at home and in South America.

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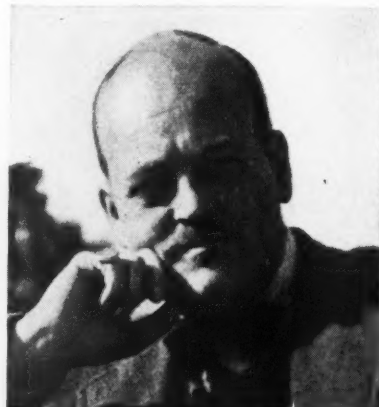
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## OVER THE EDITOR'S DESK

CONTRIBUTORS TO THIS ISSUE . . . COMING NEXT MONTH

NEITHER chemist nor technician, E. F. Lougee (pages 22-28) has gained his knowledge of plastics from observation and travel during the past five years. During this time he has visited nearly every important molding or materials plant in the East and Midwest.

For a number of years Mr. Lougee managed retail stores in New York, Philadelphia, and New England. Then for a time he conducted his own advertising agency and from that turned to writing articles for business magazines. One of these was *Modern Plastics*, of which he is now editor.



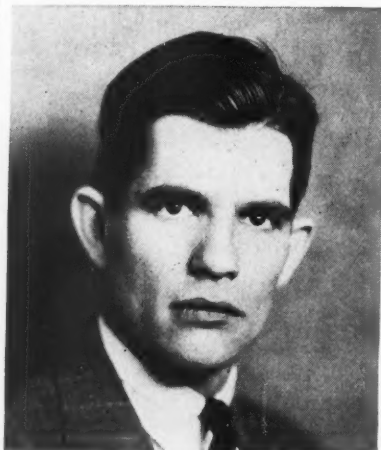
E. F. LOUGEE

Long cycles in the building industry (pages 17-21) was the subject of Clarence D. Long, Jr.'s dissertation for a doctor's degree in economics—Princeton University, 1938. Since 1936 he has been teaching at Wesleyan University

and this year is lecturing too on economic theory at the Hartford Graduate College of Insurance.

SCHEDULED for next month is a fourth report by Edwin B. George on the extent and character of concentration in American industry. The titles of the first three articles trace Mr. George's development of the subject so far: in March, "How Big is Big Business?"; in May, "Is Big Business Getting Bigger?"; and in September, "How Did Big Business Get Big?"

In that third discussion was treated the part played by mergers and financing in the growth of big business. The next article will be devoted to another means of growth, sowing profits back into the business. It will report on relative reinvestment of earnings by large and small corporations and on the inevitable corollary, relative earnings themselves.



CLARENCE D. LONG, JR.

## DUN'S REVIEW

290 BROADWAY

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More detailed breakdowns of those statistical data originally compiled by the publishers—business failures, bank clearings, building permits, and price indexes which are summarized and interpreted each month in DUN'S REVIEW (see pages 38-41)—are published monthly in DUN'S STATISTICAL REVIEW, tables only, no text, \$1 a year; \$2 outside the United States.

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ARTICLE titles, authors, company names, and subjects are listed in this index, each entry referring to the issue date and the page number. Only broad headings have been used in this index as subject listings; this is not a detailed subject heading index.

Broad studies such as the "Survey of Business Trends" and the "Survey of Taxes Paid by Business," discussions of financial ratios, and articles

such as "Executive Compensation" include analyses by trades, industries, or companies. In such cases the individual company names or lines of business are not indexed.

Statistical series originally compiled by the publisher are listed under subject headings and can also be located in "Significant Business Indicators," and "Analyzing the Record of Industrial and Commercial Failures." Other statistical data

may be found in "The Trend of Business," "Regional Trade Barometers," and "Through the Statistician's Eyes." Books reviewed are not listed individually (see Business Bookshelf).

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# O P P O R T U N I T Y



EWING CALLOWAY

*S*EVERAL years ago a college president resigned in the course of what appeared to be a most successful administration. His explanation to his surprised friends was, "When I found myself waking up in the morning and saying, 'What new trouble will come today?' I knew it was time to get out."

Individuals, companies, countries are today facing crises. This means that they are forced to decide which of several paths should be followed. This does not require an attitude of defeat. Some one of the choices may represent a real step forward. In a certain ancient language there is no single word for "crisis," but rather a combination of two symbols, one meaning "destruction" and the other "opportunity." History is full of cases where testing-by-crisis has bred great men and great ideas.

*Willard L. Thorp.*

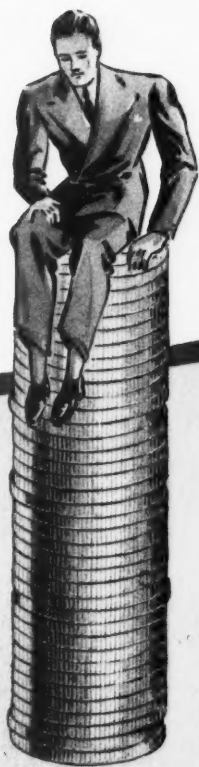
E D I T O R

*Who his  
What are your prospects for 1940?*

Profitable sales volume means adding new accounts,  
and developing larger orders from present accounts.

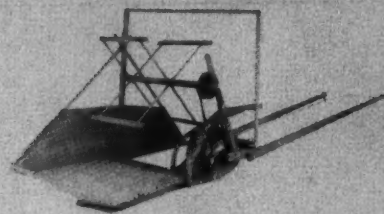
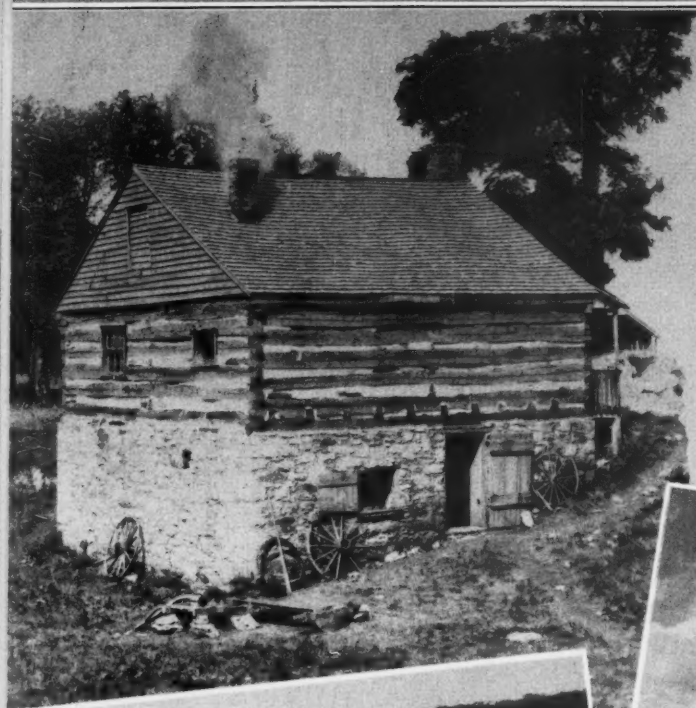
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That key is the new January 1940 State Pocket Edition  
which lists thousands of names of new concerns, and  
important rating changes, all of which have been reported  
during the past six months.



Get order card and list of State Pocket  
Editions from your nearest office of

**DUN & BRADSTREET, Inc.**



Still standing is the forge shop (upper left) on the McCormick farm, Walnut Grove, near Steele's Tavern, Va. Faintly visible in the foreground, below the nearest corner of the shop, is Cyrus McCormick's first reaper as it looked in an early stage. When finished (above) in 1831 it looked like this from the rear. The new machine required only two operators, one to ride the horse and one to rake cut grain from the platform; in a day it cut as much grain as four or five men with cradles. With such harvester-threshers (below and lower left) 30 acres of grain may be harvested in a day, the crop cut and threshed in a single operation. Thus the accomplishment of one or two men replaces the labor of scores of wielders of the sickle and flail. Through modern agricultural method one-twentieth of the population easily feeds the rest of the nation.



## EPOCHAL EVENTS IN AMERICAN BUSINESS

### *The Invention of the Reaper*

From antiquity down to the nineteenth century the implements for reaping were the sickle and the scythe. They continued in use in the hundred years or more before 1831 while the possibility of harvesting grain by machinery tantalized inventors in America and abroad. One whose ingenuity failed was Robert McCormick, of Virginia. It was to be the lot of his son, Cyrus, at the age of 22, to succeed. In Cyrus McCormick's reaper were embodied seven elements still to be found in modern grain-cutting machinery. Also credited with the invention of a reaper was Obed Hussey, of Ohio. Hussey's work is important in that those who built mowing machines in later years followed his principles; those who built reapers followed McCormick. Developments which extended the usefulness of reaping machinery after the Civil War were the Marsh harvester, which conveyed the grain to the binding platform by a canvas belt, and the Appleby binder, which automatically bound the cut grain with twine. So by the reaper, as they were too by other new agricultural machinery, were millions freed from their bondage to the soil.

**DUN & BRADSTREET, INC.**

*The Mercantile Agency, Est. 1841*

Illustrations courtesy of the International Harvester Company



